The Theory and Practice of Direct Foreign Investment in Less Developed Countries - a study of copper-nickel mining in Botswana

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PREFACE

The title of this study suggests its dual purpose. Firstly, it outlines a theory of direct foreign investment in less developed countries. Secondly, it examines the practice of foreign investment, using the copper-nickel project in Botswana as the case study.

The dissertation is divided into three major sections. Section I briefly describes the political and economic history of Botswana and discusses some of the major features of the post-independence political economy.

Section II is a survey of the theory of direct foreign investment in underdeveloped countries. Chapters 3 and 4 outline a theoretical model and the remainder of the section attempts to assess the impact of foreign investment on a host economy. Although the analysis applies specifically to mineral extraction it is often applicable to manufacturing and plantation investment as well.

It has to be emphasised that the discussion contained in Section II is conducted at the most general level. The underdeveloped "country" is an "ideal" type or paradigm - an economy where the great majority of the population is dependent upon the traditional agricultural sector, where there is widespread unemployment and underemployment, and where the distribution of wealth and income is extremely inequitable. The industrial sector is small and is dominated by the foreign investor. Such an account cannot portray the state of affairs prevailing in a particular country - it is probably a more accurate

description of the paradigmatic African country than of a Latin American or Asian country. Nevertheless, the reader must bear in mind that Section II is concerned essentially with describing a general pattern and, given its underlying assumptions, must be assessed in terms of its internal consistency. Peculiar features of an existing country, legislation passed by the government, or particular provisions contained in the agreements between the company and the host government may modify conclusions reached in Section II without denying the validity of the analytical framework. Section II can be read in isolation from Sections I and III. However, because of certain peculiar features of the case study, the general theoretical analysis is particularly useful. For reasons listed below, the contents of Section III frequently rely on estimation and prediction and the general theoretical framework outlined in Section II enables us to predict more easily the outcome of events currently occurring in Botswana.

Section III describes the development of the copper-nickel industry in Botswana. Although negotiation and exploration commenced in 1959, the first shipment of matte was delivered to the United States refinery in early 1974. Thus many significant effects of direct foreign investment are not yet apparent and, as noted above, one is compelled to rely on a measure of conjecture. Furthermore, because Botswana is only in its ninth year of independence many important statistics are, as yet, inadequate or unavailable, despite the considerable achievements of the planners and statisticians.

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S E C T I O N I

THE REPUBLIC OF BOTSWANA - an introductory survey

CHAPTER 1

The Political Framework

1.1 Introduction

Although the dissertation focuses upon the growth of a single enterprise - namely the copper-nickel industry at Selebi-Pikwe - it is crucially important to appreciate the broader context within which the industry is situated. This is particularly significant in the case of a large scale mineral extractive industry in a less developed economy, where the industry in question occupies such a prominent and pervasive position in the economy as a whole. The growth of the mining sector cannot be analysed in isolation from the rest of the economy and the prevailing political ideology.

This chapter commences with a description of the geographical and ethno-demographic features of Botswana. This is followed by an attempt to outline the development of the internal political structure. The following chapter attempts to provide a brief description and analysis of the major features of Botswana's economy.

1.2 Geographic and Ethno-Demographic Features

Botswana is a vast country covering some 570 000 square kilometres. It is part of the Southern African sub-continent and is considerably larger than Lesotho and Swaziland, and somewhat smaller than the Republic of South Africa. The country is landlocked sharing boundaries

with South Africa, Namibia (South West Africa), Rhodesia and Zambia (see Maps A 1 and A 2).

Botswana's outstanding characteristic is the chronic lack of water, a factor which acts as a major constraint on economic development - agricultural, manufacturing and mining.

Most of Botswana's development potential is concentrated in the Eastern sector where the relatively good rainfall combined with the presence of underground water provides good pastorage making the east excellent cattle breeding territory.[1] Moreover the country's only railway line - the Bulawayo-Mafeking line - runs through the eastern sector. Segments of this rich cattle breeding area are privately owned by foreign controlled companies and white absentee owners - the Tuli, Gaborone and Lobatsi Blocks (owned by the Anglo American Corporation/Charter Consolidated) and the Tati Concession Area (owned by the Tati Company).

The north-western area of Botswana is dominated by the large (6 500 square metres) swampy delta formed by the Okavango River. This represents an important, as yet untapped, source of much needed water which could be used not only for irrigation schemes in the immediate vicinity but also for providing water for the mining and industrial sectors in the remainder of the country. Feasability studies are being undertaken to assess the possibility of using the swampwaters for agricultural and industrial purposes.

The Southern and Central areas of the country are dominated

by the sparsely peopled Kalahari Desert which is a great sandveld closely covered by thornbush and grass. Surface water is non-existent and where borehole water is available in sufficient quantities cattle ranches have been established.

The northern area enjoys a relatively high rainfall with large tracts of indigenous forest and dense bushveld. The potentially rich Makarikari salt pans lie in the Southern portion of this area.

The population of Botswana, including absentees, is estimated at 671 379, of which 660 118 are Botswana citizens. The resident population is estimated at 574 094, of which some 57 per cent is below twenty years of ages.[2]

The largest, relatively modern, business centres are the capital, Gaborone (population 18 436), Francistown (19 903) and Lobatsi (12 920). The most densely populated centres are however the areas of the traditional villages, foremost amongst them being Serowe, Molepolole, Kanye and Mmadinare. Because of frequent absence at cattle posts and migration to South Africa it is extremely difficult to estimate the population of these rural centres. Approximately 80 per cent of the country's population live in the eastern sector.

Botswana is peopled primarily by the Tswana who are one of the three main ethnic and linguistic divisions of the Sotho group of Bantu-speaking peoples of central south Africa. Many Tswana reside outside of Botswana, particularly in South Africa. The Europeans excepted, there are

also considerable numbers of members of other ethnic groupings residing in Botswana although the great majority of these are also Bantu-speaking peoples and are generally subject to the rule of Tswana chiefs,[3] the Bushmen being a notable exception.

The Tswana, although, in Schapera's opinion, sufficiently homogenous to be classed as a single group, are subdivided into several subgroups, clusters (which comprise several different tribes), and into a large number of individual tribes. The eight major tribes (or, in Schapera's terminology, they would probably be referred to as "clusters") have all been granted portions of land, as distinct from the areas of "state land" and the, primarily white owned, freehold territory. Thus Botswana is divided up into two large tracts of state land, the tribal territories of the Bamangwato, Bangwaketse, Batlokwa, Bamalete, Bakgatla, Barolong, Batawana and Bakwena tribes, and the freehold territories of the Tuli, Gaborone and Lobatsi Blocks, the Tati Concession Area, and the Ghanzi farms (Map B).

1.3 Political Development[4]

Botswana's political status is that of fully independent nation state. She is a member of the United Nations and the Organisation of African Unity. The country is governed along Western parliamentary lines similar to the system prevailing in the United States. The ruling political party is the Botswana Democratic Party (BDP) headed by the President, Sir Seretse Khama.

Botswana's road to independence has been an extremely

interesting and thorny one. I will not attempt to describe the political development of the Botswana Republic in any detail, and the following constitutes little more than a chronological outline of the major events influencing the political history of Botswana.

Possibly the most outstanding characteristic of Botswana's political development is the degree to which it was influenced or, indeed, determined, by events and conflicts of a far wider nature, events and conflicts which, in essence, were unrelated to the internal affairs of the territory. The most important factor influencing the territory of the Tswanas was the conflict between Boer and Briton. This conflict eventually, at various times, involved the British, German, Transvaal and Cape Governments, Rhodes and his British South Africa Company and the London Missionary Society in the Tswana territory. The importance of the missionaries cannot be overemphasised - the London Missionary Society sent some of its most dynamic members to the Tswana territory, foremost amongst them being Robert Moffat, David Livingstone and John Mackenzie, and their power and influence over the tribal chiefs, the British Governments and the British people cannot be ignored.

Modern political development appears to date from 1852, when the Sandriver Convention was signed. This accorded a limited degree of political independence to the Transvaal and effectively meant that the Tswana were faced for the first time by an organised political entity. The Convention specifically forbade the Transvalers from encroaching upon Tswana territory. It was, however, the Transvaal's claim to the Western portion of the

Tswana territory, territory which included the "missionaries' road" to the north that brought the Transvaal into conflict with the men of the London Missionary Society, and also conflicted with Rhodes' dream of an empire to the north. The Transvaalers' interest was strengthened by the discovery of gold in the Tati Area in 1860. In the same year the Transvalers annexed the Tati Gold Area but because of the simultaneous discovery of the Kimberley diamond fields the expected gold rush did not occur and the annexation was never made effective.

After a series of severe conflicts between the British and the Transvalers the Pretoria Convention was signed in 1881. The convention attempted to stipulate the boundaries of the Transvaal but this did not prevent Transvaal burgers from encroaching on Tswana territory. The presence of these Transvalers in Tswana territory led to the establishment of the Republics of Stellaland and Goshen,[5] both of which were in Tswana territory and crossed the road to the north.

In 1884 the British and Transvaal governments signed the London Convention. Small parts of Stellaland and Goshen were incorporated into the Transvaal although the British ensured that the road to the north remained open. The Transvaal burgers ignored the London Convention and began attacking Tswana territory. In late 1884, after the Boers had raised the Transvaal flag at Mafeking, a powerful British force under Colonel (later General Sir Charles) Warren was despatched to the Tswana territory. British action at this time was prompted by German acquisition of South West Africa and the possibility of a German-Transvaal link-up.

By Order-in-Council of June 1885 the British Government finally established a protectorate over British Bechuanaland. On the 30th September 1885 the area South of the Molopo River was proclaimed British territory. This area fell under the jurisdiction of the Governor of the Cape Colony and was known as British Bechuanaland. The area north of the Molopo River to 22 ^{o} S latitude fell under the jurisdiction of the High Commissioner and was known as the Bechuanaland Protectorate.

Matters were not allowed to rest there. For one thing the tribal boundaries had not been determined but, of more imminent importance, was the granting of the Charter to Rhodes' British South Africa Company in 1889. The terms of the Charter gave the Company the right to acquire the powers necessary for government in an area which incorporated the whole of the Bechuanaland Protectorate. Moreover it certainly appeared to be the intention of both the British Government and the British South Africa Company that the territory would eventually be administered in a similar fashion to Matabeleland and Mashonaland.

Several of the important Tswana Chiefs, ably supported by the London Missionary Society, objected to the prospect of being administered by the British South Africa Company and in 1895 Chiefs Kgama, Sebele and Bathoen went to London to plead their case. It was, however, the Jameson Raid, launched from the Bechuanaland Protectorate, that put an end to Rhodes' designs. Furthermore in 1895 the separation between British Bechuanaland and the Bechuanaland Protectorate was finalised - the former was incorporated into the Cape Colony, and the latter was administered by a Resident Commissioner directly responsible to the High Commissioner.

to give maximum authority to the traditional leaders, the British authorities soon found themselves embroiled in tribal disputes of every nature.

By 1920 it had become necessary to create a Native Advisory Council to advise the Resident Commissioner on all matters affecting African interests. Within a few months a European Advisory Council was formed. In 1951 a Joint Advisory Council was formed. These councils had no legislative rights and it was this right that Tshekedi Khama sought most avidly.

In 1958 Tshekedi was able finally to initiate a motion in the Joint Advisory Council calling for the establishment of a legislative council. An Executive and Legislative Council was formed although the latter was decidedly racist in its constitution, the Whites receiving a degree of representation out of all proportion to their numbers. It was nevertheless a significant step towards responsible government.

In December 1960 Botswanas first political party, the Botswana Peoples Party (BPP), was formed, followed in early 1962 by the formation of Seretse Khamds BDP.

It was decided that talks would be held at Lobatsi in July 1963 to discuss the granting of internal self rule to the Protectorate. Pressure was however mounting for a grant of independence. The proposals of the Lobatsi Constitutional Conference were accepted by the British Government and elections were held in March 1965. The BDP gained a landslide victory and Seretse Khama was elected Prime Minister of the Protectorate's first African government.

The Government tabled its independence proposals in December 1965. The system of government prevailing in Botswana is broadly similar to that prevailing in the United States, with Khama as Executive President of the Botswana Republic. The most recent elections were held in 1970 and although certain opposition parties did gain a handful of additional seats the position of the BDP appears to be secure. The pan-Africanist BPP appears to be gaining considerable ground in the urban areas - they hold both Francistown seats - whilst the newly formed Botswana National Front (BNF) appears to derive most of its support from the membership of ex-chief Bathoen II, formerly chief of the powerful Bangwaketse tribe.

After 1910 it appears that the area south of Botswana, namely South Africa, did not exercise as direct an influence on events within the territory's boundaries as it had done in the nineteenth century. This is correct in a certain sense but the importance of the triangular relationship between South Africa, Botswana (then Bechuanaland) and Britain cannot be overemphasised.

In terms of a schedule to the South Africa Act it is evident that Britain envisaged that the High Commission Territories would eventually be incorporated into the Union of South Africa. At the time the British government proferred the somewhat vague assurance that they would not hand over the territories to South Africa before the wishes of the inhabitants had been ascertained. Nevertheless, it is evident that both Britain and South Africa were certain that incorporation of the territories into the Union would take place in the not too distant future.

This particular aspect of Botswanas history has been extensively documented.[7] Suffice it to say that none of the High Commission Territories were ceded to South Africa, although the expectation that this would eventually happen was to exercise an important influence on the nature of British rule in the Protectorate.

When assessing the part played by Britain in the territory's economic and constitutional development one must bear in mind Britains extreme reluctance to extend her influence over the territory. In 1885 it was explicitly stated that Britains major motive in according protectorate status to the territory was to safeguard the road to the north and to counter German expansion and the possibility of a German-Transvaal territorial alliance. Moreover, it appears that Britain did not envisage bearing responsibility for the territory's administration for a protracted period. It appears that, shortly after the declaration of a protectorate, it was accepted that the British South Africa Company would assume responsibility for the government of the territory. Furthermore from 1909, if not earlier, the British Government appears to have assumed that the protectorate would eventually pass into the hands of the Union Government. These factors undoubtedly contributed to Britain's neglect of the Protectorate.[8] Stevens asserts that,

> "... there can be little doubt that the British objective of establishing firm control over the road to the north was thus achieved. At the same time the acknowledged primacy of this goal was destined to have the unfortunate effect of retarding the social and economic advancement of the indigenous population and of delaying the Territory's political and constitutional evolution." (p. 113)

A glance at the financial records of the Protectorate will illustrate one example of the attitude which Britain adopted towards Bechuanaland's development. The earliest available financial records are for the year 1899/1900. From this year to 1911/12 it appears that Britain provided some R 1 044 000 in the form of grants-in-aid after which these grants ceased. From 1930/31 the Bechuanaland Protectorate received small annual allotments from the Colonial Development Fund.[9] The report of the Pim Commission (1933) severely indicted British policy in the Bechuanaland Protectorate and, in its concluding remarks, the Commission noted that,

> "Speedy results cannot be looked for and many suspicions have to be removed. Nothing would do more to remove them than clear evidence that Native prosperity and Native advance in all directions, both economic and cultural, is the genuine concern both of His Majestiy's Government in the United Kingdom and of the local administration." (par. 229)

From the mid-1930's it appears that the British Government, prompted by the criticism of the Pim Report, showed an added interest in the development of the Protectorate. Allotments to the Protectorate under the Colonial Development and Welfare Acts showed a small, but steady, increase, the allocation under the 1945 Act (which covered a period of five years) totalling R 2 033 750. Nevertheless between 1932/33 and 1954/55 it appears that revenue collected by the local administration constituted some 83 per cent of total expenditure. Under the 1955 Colonial Development and Welfare Act Bechuanaland's allotment was raised to R 2 668 000. By 1964/65 the annual expenditure from the Colonial Development and Welfare Fund had risen to R 1 756 000.

Grants-in-aid from the British treasury recommenced in 1956/57 when the surplus balance accrued during the war years had been completely exhausted. The delay in reviving budgetary assistance was subjected to severe criticism. The Morse Commission noted that,

> "In the ten years succeeding the war the policy of husbanding the Territory's surpluses and so postponing the day when a grant-in-aid would be imperative meant that the territory made very slight progress; the standards of the public service which were never lavish, became relatively depressed to a level from which recovery might well have been far slower than the decline." (p. 42)

Over the period 1956/57 to 1965/66 grants-in-aid totalled approximately R 22 000 000. During that period the British Government's total contribution to the Protectorate was approximately R 40 000 000. In 1965/66, the year preceding independence, the grant-in-aid totalled R 3 740 000 and there was little prospect of this dependency being reduced in the foreseeable future.

NOTES TO CHAPTER 1

1 The average rainfall for the whole country is about 450 mm per annum. In the extreme south west the average is less than 250 mm and in the extreme north east it is more than 650 mm. For more detailed information on rainfall see National Development Plan 1973 - 78, chapter 8.

2 For a detailed breakdown of the population figures see Statistical Abstract 1972; Manpower and Employment in Botswana, 1973. Most of the information is derived from the 1970 Census.

3 For a detailed analysis of the Tswana group see Schapera (1953, 1970).

4 For historical background see, inter alia, Sillery; Halpern; Stevens (1967). Also selected essays in Potholm and Dale (ed).

5 Despite the Pretoria Convention Transvaal burghers continued to acquire land in Tswana territory. This land was acquired either by outright freebooting, or from unscrupulous speculators and agents, or in return for assisting in inter-tribal disputes. Stellaland and Goshen were acquired in the latter manner - see Sillery, chapter 6. Also Davenport and Hunt (eds).

6 Blue Book C 4588.

7 See particularly Hailey; Khama, Tshekedi; Stevens (1972).

8 Henry, and Spence attempt to rationalise Britain's attitude towards the Protectorates.

9 For an outline of Botswana's early financial history see Financial and Economic Position of the Bechuanaland Protectorate (1933) Cmd. 4368, chapter III.

CHAPTER 2

The Major Characteristics of Botswana's Political Economy

2.1 Introduction

Before the implications of the growth of the mining sector can be assessed the framework within which the sector is situated must be outlined. I have attempted thus far to outline Botswana's political history, and the remainder of this section attempts to highlight particular features of the politico-economic framework. I have chosen to concentrate upon three broad features of Botswana's political economy. Firstly, Botswana as a member of the Southern African region; secondly, the characteristics of the labour force and the distribution of income; and thirdly, a brief description of the economic base - the livestock and agricultural sector, the mining sector, and the manufacturing sector.

2.2 The Southern African Region[1]

We have seen how so many aspects of Botswana's political and economic development have been determined by her geographical proximity to South Africa, or, in general, by her locational "membership" of the Southern African sub-continent. Indeed, some of the most important events in Botswana's history constituted little more than a response to a situation prevailing elsewhere in the sub-continent, and over which the people of Botswana exercised little or no control.

Botswana's membership of the Southern African region

has remained an important determinant of her politico-economic development. The question of the development potential of Botswana as part of the Southern African periphery is an important aspect of the discussion in Section III. In the present section, I will attempt to outline, as briefly as possible, the institutional features of the Southern African region.

Botswana, Lesotho, Swaziland (BLS) and South Africa have been members of the Southern African Customs Union since 1910.[2] The 1910 Agreement was extremely brief. It provided for free interchange of goods between the member territories; it provided for a common external tariff at South African rates; the shares of the common customs pool were specified by the agreement. Botswana received 0,276 per cent of the revenue pool, Lesotho 0,886 per cent, and Swaziland 0,149 per cent, the remainder (98,689 per cent) accruing to South Africa. Calculation of these shares was based upon an estimate of the customs and excise duty content of imports into the High Commission territories over the period 1906 - 08. In 1965 the shares accruing to Botswana, Lesotho and Swaziland (BLS) were adjusted, although the BLS share as a whole (that is, in relation to South Africa) was not altered. The 1910 Agreement did not permit BLS to protect their industries against competition from South Africa. Furthermore, no provision was made for consultation between the partners.

BLS received several clear cut benefits as a result of the existence of the Customs Union. Firstly, BLS did not have to bear the financial burden of administering a customs and excise department. Secondly, BLS enjoyed privileged access to the relatively large South African market.

The disadvantages of belonging to the Customs Union were equally clear cut. Firstly, the BLS countries were not permitted to protect their industries from South African competitors. South Africa, on the other hand, utilised protective tariffs in order to nurture her infant industrial sector. The common external tariff was set with South African priorities in mind and BLS consumers were compelled, on occasion, to pay a price above the world price to facilitate the growth of a South African industry. The bulk of BLS imports were from South Africa but they were not permitted to protect domestic industries which might wish to compete with one of the South African suppliers.

Secondly, the BLS Governments were not able to exercise effective control over customs and excise rates which are a major source of government revenue and an important policy variable. Under the 1910 Agreement the growth in BLS revenue from Customs and excise duties did not reflect the growth of the BLS economies as a whole, but rather depended upon the state of trade in South Africa and the level of its duties. Robson points out that in 1965/66 the proportion of ordinary revenue contributed by customs and excise duties amounted to 21 per cent, 35 per cent and 32 per cent for Botswana, Lesotho and Swaziland respectively whereas in other African countries at similar stages of development the contribution made by this revenue source amounted to approximately 50 per cent to 60 per cent.

In general, the BLS Governments were forced to relinquish control over important aspects of fiscal policy. The implications of this situation were clearly outlined in 1969 when the South African Government imposed a sales

tax on a wide variety of commodities, many of them consumer necessities, affecting the cost of living of the lowest income groups. The BLS Governments were not consulted before the imposition of this measure but were forced to accept it. The action of the South African Government was subjected to severe criticism and probably served to emphasise many of the unsatisfactory implications of the Customs Union agreement.

In December 1969 a new agreement was concluded. The new agreement is considerably more comprehensive than the 1910 agreement and many of the provisions of the new agreement attempt, it appears, to overcome some of the problems outlined above. At this stage no attempt is made to assess the provisions of the existing agreement, and the following paragraphs merely attempt to describe the most important provisions of the agreement.

The agreement provides for the free interchange of goods between the contracting parties (Articles 2 and 3) with certain exceptions (Articles 11, 12, 17). The customs duties and tariffs in force in South Africa will be applied to all goods entering the common customs area (Article 4). This is similar to the 1910 agreement. There are however certain provisions which differ radically from the provisions of the 1910 agreement and it is upon these that attention will be focused.

Article 6 provides that the governments of BLS may impose additional duties on goods imported "... to enable new industries in its area to meet competition from other producers or manufacturers in the common customs area". The duration of the protection is limited to a period

of eight years. Article 7 provides that BLS may specify certain industries which are or are likely to be of major importance to their economies, and request the South African Government to maintain or increase an existing tariff on a competing import for a specified period. Thus the new agreement does afford some form of infant industry protection to BLS.

Significant alterations have been made regarding the distribution of revenue (Article 14). The new revenue formula relates the actual revenue transfer from the customs pool to the value of each country's imports, and it attempts to divide the common pool in proportion to each country's consumption of goods. A multiplier of 1,42 is then appended to the total arrived at in terms of the formula. Landell-Mills (1971) suggests that the multiplier is intended to compensate BLS for the price raising effects of protective tariffs and import quotas, for the loss of fiscal discretion suffered by BLS, and for the polarisation of development which inevitably occurs when underdeveloped regions are linked to a relatively advanced region in a customs union. The agreement itself does not attempt to rationalise the use or magnitude of the multiplier.

Finally, the current agreement provides for the creation of a consultative body, the Customs Union Commission, which will meet at least once a year (Article 20). Various other articles provide for consultation in respect of particular problems (inter alia Articles 5, 7, 12, 14, 17, 18).

The implications of the new agreement will be examined in detail in Section III.

The other important institutional feature of the Southern African region is the de facto Currency Union[3] existing between BLS and South Africa with the Rand serving as legal tender in BLS.

Certain advantages accrue to BLS from the existence of the Currency Union. Firstly, the cost of manufacturing and administering a currency is avoided.

Secondly, and more important, the use of a powerful, well established currency increases the confidence of domestic savers and foreign investors. Furthermore the use of a single currency facilitates trade between the member countries.

There are, however, many serious disadvantages arising from membership of the Currency Union. Firstly, use of the Rand effectively means that BLS are providing South Africa with an interest free loan, insofar as they (that is BLS) do not earn anything from the backing of the currency in circulation.[4]

Secondly, BLS do not have access to the fiduciary issue. This is an inexpensive source of finance which is not available to the BLS planners.

Thirdly, membership of the Currency Union severely restricts the BLS governments in their use of monetary policy. The money supply adjusts automatically to fluctuations in the balance of payments, a surplus in the external accounts effectively means that currency is imported. As Muzorewa points out, this means that BLS cannot suffer from an external payments problem, but it also implies that BLS cannot control the supply of money and

it is possible that the BLS planners do not consider the maintenance of external equilibrium to be a major priority. They may prefer to maximise employment opportunities which depends on the unfettered ability to finance development projects which, in turn, is strongly influenced by the ability to control the money supply.

Problems of a similar nature arise from the existence of a common foreign exchange pool. It might be argued that the foreign exchange pool effectively means that Botswana faces no foreign exchange constraint and may import in unlimited quantities. However, as pointed out above, the fact that the money supply is dependent upon the balance of payments acts as the relevant constraint for if the country wishes to expand the money supply it will have to forgo imported goods and services. Furthermore, BLS have to obtain the approval of the South African authorities to remit funds to the non-sterling area.

In general membership of the monetary union does force BLS to relinquish control of monetary policy. They may not use exchange rate fluctuations as a policy instrument. Their ability to control the money supply is severely limited and credit conditions in BLS will be strongly determined by the situation prevailing in South Africa. In essence then both the Customs and Currency Union force BLS to relinquish a significant degree of control over fiscal and monetary policy to the more developed partner, South Africa. The above is not intended as a rigorous appraisal of the Customs and Currency Unions, but rather as a description of the institutional features of the Southern African region. The implications for Botswana of belonging to the Customs and Currency Unions will be examined in greater detail in the case study.

2.3 Labour and the Distribution of Income

The need to ensure a rapid growth of employment opportunities and an equitable spread of income is, as shall be discussed at a later stage, a major priority of the Botswana planners. Thus discussion of the labour market and the distribution of income is an important aspect of the analysis that follows and it is necessary to describe the existing situation in some detail.

a) Employment and Unemployment

Table 2.1 reveals some important movements in the labour force between 1964 and 1971. The economically active population increased by 1,62 per cent per annum over the period. Employment for cash wages increased by 6,75 per cent per annum and employment for cash wages in the modern sector increased by 8,28 per cent per annum. The portion of the population solely dependent upon family agriculture increased by only 0,75 per cent between 1964 and 1971. Thus by 1971 8,9 per cent of the population were earning cash wages, which compares very favourably with Kenya (6 per cent), Uganda (3,5 per cent) and Tanzania (2,5 per cent). The proportion of those actually in receipt of cash income increases considerably when the remittances of the migrants working in South Africa are taken into account.

The statistics do however require closer examination. In 1964 12,6 per cent of the economically active population were receiving cash wages and by 1971 this had increased to 18,1 per cent (an

TABLE 2.1: The Growth in Population, Employment, Labour Force and Migrancy - 1964 - 71

		Total Resident Population	Resident Population Aged 10 +	Migrants Aged 10 +	Total	Non-Cash Family Agriculture	Cash Employment	Cash Employment Excluding Agriculture
					Economically Active Population Aged 10 +			
1964	Males	236 025	153 423	35 728	125 477	100 450	25 030	16 598
	Females	266 703	182 476	6 394	125 201	118 580	6 630	5 470
	TOTAL	502 728	335 899	42 122	250 678	219 030	31 660[1]	22 068
1971	Males	262 121	168 621	48 000	131 080	92 024	39 056	28 671
	Females	311 973	216 264	12 000	151 410	139 058	12 352	11 173
	TOTAL	574 094	384 885	60 000	282 490	231 082	51 408[1]	39 844
Average Rates of Growth (Total) [2]		1,80	1,85	4,87	1,62	0,75	6,75	8,28

NOTES: 1 Includes people working on tribal lands, many of whom may be employed only for a brief period.

2 The inter-censal period was taken as being from 31st March 1964 to 31st August 1971, i.e. 7,42 years.

Source: Manpower and Employment in Botswana, Table A.1

increase, in absolute terms, of 19 748). When this is coupled with an absolute increase of 31 812 in the economically active population the end result is that those relying on family agriculture alone still increased by approximately 12 000 (1 700 per annum).

There are no reliable estimates of unemployment and underemployment in Botswana. The 1973 Manpower Survey estimates that approximately 5 000 urban dwellers between the ages of 15 and 54 (that is, 13 per cent of the age group) were unemployed in 1971. Rural unemployment and underemployment is even more difficult to estimate. From Table 2.1 it appears that, although the numbers employed in traditional agriculture increased by approximately 5,6 per cent over the seven year period, the numbers of males employed in that sector actually decreased. However, as the Manpower Survey points out, this is as much a result of the rapid increase in emigration of males of working age as of the growth of domestic cash employment.

Furthermore Table 2.1 does not reveal the important fact that approximately 57 per cent of Botswana's resident population is under 20 years of age which means that the planners will be faced in the near future with the task of providing employment for the large school-going population.

The question of absenteeism is discussed below but suffice it to say that assumption 3 is considered unrealistic. As employment opportunities in Botswana expand the rate of emigration is likely to decrease somewhat and, although undesirable in many respects,

TABLE 2.2: Projected Growth in the Economically Active Labour Force to 1978 and 1988 under Alternative Assumptions of Rates of Emigration and Absenteeism

Alternative Assumptions	1971 - 1978		1978 - 1988	
	Increase in Active Labour Force	Average Annual No of Jobs Required	Increase in Active Labour Force	Average Annual No of Jobs Required
1. Continued Emigration and Absenteeism	35 734	5 100	79 067	7 900
2. No Emigration, Continued Absenteeism	56 628	8 100	117 138	11 700
3. No Emigration, Continued Absenteeism at 1972 level	67 948	9 700	126 602	12 700

NOTES: a) "Emigration" refers to those permanently absent from Botswana whilst "absenteeism" refers to those temporarily absent, usually in employment in South Africa.

b) Declining mortality and fertility rates assumed in each case.

SOURCE: Manpower and Employment in Botswana, Table 1.4.

there is little reason to expect a decline in the rate of absenteeism (that is, those who seek work in the economies of other countries on a temporary basis). The emigration component is important - it is estimated that between 1964 and 1971 approximately 36 000 people left Botswana permanently. The Manpower Report suggests that the situation envisaged somewhere between assumptions 1 and 2 represents a realistic viewpoint. This implies that between 1971 and 1978 some 6 000 or 7 000 additional employment opportunities will have to be created each year. In the

following ten year period approximately 10 000 new jobs will have to be created each year. The 1973 - 78 National Development Plan estimates that during the plan period 5 300 new jobs will be created each year, an average rate of growth of employment of 8,8 per cent per annum which effectively means that between 1973 and 1978 the planners expect to absorb some 80 per cent of the increase in the resident active labour force in formal sector cash employment. They acknowledge that the employment growth rate will not be as high as 8,8 per cent per annum in the following ten year period (1978 to 1988) although over the fifteen year period they expect total employment in the formal sector to grow by approximately 6 per cent per annum. Thus by 1988 the planners expect 140 000 people to be employed in the formal sector, more than 30 per cent of the resident active labour force.

b) Labour Migration

As is the case in most underdeveloped countries, the Botswana labour force is characterised by widespread migration between the rural and urban areas. Moreover, as with all the underdeveloped regions of Southern Africa, there is considerable movement of labour between Botswana and South Africa.

The following table indicates that between 1964 and 1971 urban population increased by 32 986 (approximately 4 123 per annum) whereas urban cash employment increased by 8 100, approximately 1 013 per annum. Thus the proportion of the urban population in cash employment has declined from 41,5 per cent in 1964

TABLE 2.3: Urban Employment and Population Growth, 1964 to 1971

	De Facto Urban Population	Urban Cash Employment (estimate)
1964	21 430	8 900
1971	54 416	17 000
Average Annual Growth	13,4 per cent	9,1 per cent
Estimated Labour Force Growth (1)	13,8 per cent	

NOTE: 1) Labour force is defined as that part of the population between 15 and 54 years of age.

2) In order to calculate the labour force growth rate the estimates have had to be weighted to allow for the higher concentration of males of working age in Selebi-Pikwe and Orapa, new towns since 1964.

SOURCE: Manpower and Employment in Botswana, Table 1.2.

to 31,2 per cent in 1971, implying an increase in both the number of unemployed and the rate of unemployment in the towns. The Manpower Report states emphatically that "... our estimate of 17 000 is an absolute maximum for urban employment in 1971, giving a maximum estimate for intra-censal growth in the urban areas" (p. 5).

The table below indicates that by 1971 only 54,5 per cent of the urban population of working age were employed in the formal sector.

TABLE 2.4: Population Aged 15 to 54 in Urban Areas in 1971, by Type of Economic Activity and Sex

	Total in Age-Group 15-54	Not Economically Active	per cent	Had been active in Family Agric. only	per cent	Had been active in cash employment	per cent
Males	14 877	1 190	8,0	782	5,3	12 905	86,7
Females	14 751	6 195	42,0	5 320	36,1	3 236	21,9
TOTAL	29 628	7 385	24,9	6 102	20,1	16 141	54,5

SOURCE: Manpower and Employment in Botswana, Table 1.1.

It is, moreover, reasonable to expect a substantial increase in urban unemployment, as there is little reason to expect a decline in the rate of rural-urban migration. Migration of this nature is encouraged not only by the rural-urban wage differential or by the attraction of the city's "bright lights" but is determined largely by the migrants' expectation of obtaining employment. Thus as cash employment opportunities in the urban areas increase so too will the rate of migration. Pikwe, the site of the copper-nickel development, provides ample verification of this phenomenon as is evidenced by the rapid growth of a squatter village at the mine gates. The population of this village is estimated conservatively at 12 000.

The extent of inter-country labour migration is also highly significant.[5] In 1972 the total number of

foreign black migrants working in Rhodesia and South Africa was estimated to total 840 000, approximately 7 per cent (58 800) of whom were citizens of Botswana. Thus there are at least as many Botswana in paid employment outside as inside the country. The migrants are expected to remit approximately R 1 000 000 per annum to their families and dependents in Botswana. The continuing importance of the South African labour market is succinctly expressed in a government white paper which noted that,

> "Although the numbers in modern sector cash employment represent almost 40 per cent of the male labour force - which is high by the standards of the developing world - this is largely due to the large numbers of people who find work in the mines, factories, and firms of South Africa ... It is unfortunate that so many people should be forced to seek work outside the borders of this country, it must be recognised that employment opportunities in Botswana will only build up slowly, and it is inevitable that large numbers will continue to seek work outside Botswana for some years to come." (Government Paper No. 2 of 1972, Para 7).

c) The Level of Skills

The Report on Manpower and Employment identifies the shortage of skilled workers as the major constraint inhibiting the development of the Botswana economy and the 1973 - 1978 National Development Plan acknowledges that "in both the private and public sectors of the economy, the present shortage of local supplies of skilled and educated manpower has become an acute constraint upon development" (para 7.21). Skilled

employment is defined as including all people who possess, or who are in a job which requires, some post primary education or training.

The shortage of skilled workers is the most important factor accounting for the dependence upon expatriate labour. The Manpower Report estimates that skilled employment comprises approximately 26 per cent of total employment in the formal sector, 19 per cent of these positions being held by expatriates. The shortage of skills is particularly acute at the higher level of employment, the proportion of expatriates in skilled employment increasing from approximately 7 per cent at the primary schooling level to over 80 per cent of those employees requiring university degrees, although the Manpower Report does reveal that only 67 per cent of the expatriate employees were, in the opinion of their employers, in jobs requiring post primary education.

The shortage of skilled workers, particularly at higher levels of education, also serves to explain the large earnings differential between those jobs requiring a high level of skills and those requiring relatively little post-primary education, training or experience. The Manpower Report notes that one of the two most important characteristics of the structure of wages and salaries in Botswana is the enormous wage differential between the higher and least well paid jobs. This assertion is borne out by Table 4.1 of the Manpower Report which reveals that Motswana graduates employed in the private and parastatal sectors earn on average R 228 per month,

whilst their fellow citizens who possess only a Form I education (one year post primary) and some training earn only R 47 per month (the differential between non-Batswana graduates and non-Batswana with Form I and training is only R 303 per month as against R 186 per month). The earnings differential in the public sector is not as pronounced.

Thus the Botswana planners are confronted with the situation of unemployment and a simultaneous dependence on expatriate workers. A major priority of the planners is thus localisation of employment and a reduction of the earnings differential between highly skilled and less skilled workers, between skilled and unskilled workers, and between those employed in the cash sector of the economy and those reliant on traditional agriculture. This presupposes the development of a localisation programme, a wages and incomes policy, and increasing concentration on the provision of education and training. With these priorities in mind the planners have attempted to project the overall demand and supply position of skilled workers in the Botswana economy.

Thus, assuming that,

a) public sector demand for skilled and educated manpower will increase at the same rate as departmental recurrent expenditure in real terms
b) private sector requirements for skilled and educated manpower will increase at the same rate as output per sector, and
c) wages, relative to other production costs, remain constant,

the planners expect the overall supply and demand position for skilled employment to be as follows:

TABLE 2.5: Expected Supply and Demand Position for Skilled Employment in 1978 and 1988 by Level of Required Education

	Std. 7	Form I	Form III	Form V	Degree
1972 Batswana in Post	2 020	680	6 390	1 150	180
Expatriates in Post	210	70	820	710	580
1978 Demand	3 700	1 310	13 590	4 390	1 420
Batswana Remaining from 1972	1 830	610	5 790	1 040	170
Addition from ed. and tr. 1972 - 77	a)	1 340	5 330	2 270	310
Expatriates Required	-	-	2 470	1 080	950
1988 Demand	6 130	1 930	19 090	10 490	2 190
Batswana Remaining from 1972	1 560	520	4 920	880	140
Additions fr. ed./tr. 1972 - 87	a)	2 060	16 240	10 740	1 900
Expatriates Required	-	-	-	-	150

NOTES: a) Estimates unreliable but supply of primary school leavers will exceed demand.

b) Errors may appear owing to rounding.

SOURCE: Manpower and Employment in Botswana, Table 5.3.

Thus it appears that by 1988 Botswana will be faced with a small excess supply of skilled and trained workers in all job categories except those requiring

The statistics on income distribution contained in the 1973 - 78 National Development Plan are considerably more detailed.

TABLE 2.6: Number of "Families" by Income Group, Based upon Income Tax Returns 1970/71

Income per annum (R)	Numbers	Percentage
0 - 750	95 146	97,2
751 - 1 000	316	0,3
1 001 - 1 500	372	0,4
1 501 - 2 000	313	0,3
2 001 - 3 000	479	0,5
3 001 - 5 000	740	0,8
5 001 - 8 000	437	0,4
8 001 +	134	0,1
TOTAL	97 937	100,0

NOTES: It has been assumed that each tax payer represents a family.

SOURCE: National Development Plan, 1973 - 78, Table 1.10.

Thus it appears that only 2 800 families, many of which were expatriates, earned an income in excess of R 750 per annum. Of those Batswana in salaried employment, 77 per cent earn a mean annual income of R 300, and only 1,5 per cent of citizen families employed in the formal sector earn an income in excess of R 750 per annum.

In the rural areas there are, as is to be expected, many more Batswana families earning fairly substantial

incomes, in fact approximately 2 000 Batswana families earn more than R 750. But there is a marked disparity in incomes within the rural sector. In 1971/72 approximately 40 000 families earned between R 0 and R 250 per annum, and approximately 7 000 rural families earned a cash income of less than R 50 per annum and grew no crops. These figures do not include remittances from migrants.

When the impact of the mining sector is discussed the existing distribution or, rather, maldistribution, of the national income must be borne in mind. As I shall point out at a later stage, narrowing of the earnings differential referred to above is an important government priority and the implications of mining development will have to be assessed in terms of this goal.

2.4 The Economic Base

This introductory chapter concludes with a brief description of the major sectors of the Botswana economy - the agricultural sector, the manufacturing sector, and finally, the mining sector.

a) Agriculture

As early as 1805 Henry Lichtenstein, the famous traveller, noted that,

> "The principal wealth of the country consists in the breeding of cattle. Their herds are much more numerous than those of the Koossas (sic) and they have as great a veneration for them.

One man alone will sometimes be the owner of eight or ten considerable herds...".

The economy's dependence upon cattle has continued to the present day. In 1968/69 livestock was responsible for 74 per cent of the value added to the non-freehold rural domestic product and in 1971/72 it appears that this figure had increased slightly to 76 per cent.[7] In 1968/69 livestock exports accounted for approximately 67 per cent of total exports. The marketing of livestock is controlled by the Botswana Meat Commission, a co-operative type organisation, which also controls the large abattoir at Lobatsi. The major export markets are South Africa, Zambia, and the United Kingdom. The long term prospects for these markets and the possibility of expanding into as yet unexploited markets are sound.

There are, however, important problems associated with the dependence upon livestock. Firstly the distribution of this important source of wealth is decidedly skewed. In 1971/72 32 per cent of the rural population owned no cattle at all and 40 per cent owned less than 10 head. The 1973 - 78 National Development Plan estimates that at least 50 head of cattle are required to ensure a satisfactory livelihood. Furthermore weather conditions cause considerable fluctuations in the cattle population and although recovery from drought is fairly rapid it appears that in each post-drought period the ownership of cattle has become more concentrated than in the preceding period. Smallstock - goats, sheep, pigs - are distributed more equitably but are not nearly as important a source of wealth as cattle.

Secondly, livestock production is not labour intensive and, as such, does not satisfy one of Botswana's most pressing needs.

The majority of the rural population is unable to earn a satisfactory livelihood solely from cattle and, therefore, it is important that the Botswana authorities encourage crop production as an alternative source of income and employment. There are, needless to say, enormous obstacles to be overcome - lack of water and irrigation facilities, lack of draught power, technological inefficiency, soil erosion, poor credit facilities, to name but a few. No attempt will be made to review Botswana's problems in the sphere of crop production. Suffice it to say that the agricultural sector will remain the base of the economy for the forseeable future - it is the only source of livelihood for the great majority of the population, and, in 1971/72, the value of agricultural output accounted for 31 per cent of the gross domestic product. However, livestock production, though highly lucrative for the few, is too narrow a base to provide income and employment for the bulk of the rural population, and attention will have to be focused on arable agriculture.

b) Industry

The inclusion of secondary industry in a description of the major sectors of the Botswana economy is open to criticism - its contribution to employment is small; in 1971/72 the value of manufacturing output comprised approximately 8 per cent of the gross

domestic product, 80 per cent of manufacturing's contribution being derived from the activities of the Botswana Meat Commission.

Nevertheless the planners are paying considerable attention to the expansion of secondary industry and assert that the government's goals will only be achieved with a much greater development effort in the industrial and commercial sector. Furthermore the government expects the industrial and commercial sector to grow rapidly - the 1973 - 78 National Development Plan estimates that 10 000 new jobs will be created in the industrial, commercial and related sectors during the plan period, and it is estimated that almost 3 000 of these new job opportunities will be made available by the growth of the manufacturing sector.

The government will attempt to encourage the growth of the industrial sector in a number of ways. Firstly it will provide most of the basic infrastructural requirements - industrial estates have been established in Gaborone and Francistown; transport and communication facilities, both rail and road, will be improved. Certain fiscal incentives are offered - the company tax rate is only 30 per cent, depreciation allowances are generous, and foreign investors will be able to repatriate their earnings without government interference. Furthermore the government have indicated that they will use, where necessary, Clause 6 of the Customs Union Agreement which permits the erection of a protective barrier against South African manufacturers. The government will use a tariff barrier to protect the brewery which is to be established in Botswana.

Several para-statal bodies have been established to facilitate the growth of the industrial sector. The Botswana Development Corporation is a limited liability company the share capital of which is wholly owned by the government. The major activity of the BDC has been in the field of township and property development and in the management of various government investments. The BDC also enters joint business ventures with private capital and assists private enterprise by providing a variety of financial services and by leasing equipment and machinery. The National Development Plan estimates that the BDC will invest in excess of R 10 million during the plan period. It must be borne in mind that the BDC is a corporation with the normal responsibility towards its shareholders - in other words, it is a profit maximising body and will not invest in any enterprise which does not ensure a stipulated commercial rate of return.

The other important institution is the Botswana Enterprises Development Unit (BEDU) which will work in conjunction with the Botswana Enterprises Development Company Ltd (BEDCOL), another limited liability company wholly owned by the Government. The task of these institutions will be to encourage the development of enterprises owned and managed by Botswana citizens. Industrial estates are being established in Gaborone, Francistown, and Mochudi which will be made available to local entrepreneurs, and other financial and technical services will be provided. BEDU and BEDCOL are required to promote the growth of small scale, labour intensive enterprises.

The output of the industrial sector will be aimed at the export market and, it is hoped, will also be import substituting. However it is important that the local manufacturers cater for the domestic market and it is hoped that the growth of the mining sector will generate, both directly and indirectly, the growth of a domestic market. This possibility will be examined in depth at a later stage.

c) Mining[8]

Botswana has a long history of mineral extraction and exploration, in fact the first gold discovery in Southern Africa was made in north eastern Botswana in 1866.

This aroused interest in the mineral potential of the territory and widespread exploration was undertaken but with limited success. Small scale gold mining was undertaken in the Tati Area but the last gold working closed in 1964; manganese and asbestos were mined at various localities, although all mining of these minerals had ceased by the mid-sixties; copper attracted the attention of the early prospectors leading to the development in the early decades of the century of the Bushman Mine, 73 miles northwest of Francistown; diamonds were found near Francistown in 1959 and an assortment of semi-precious stones were found in various parts of Botswana.

Mining output in the pre-independence era was never very significant and by 1965 all mining activity had ceased. However, although the tempo of mineral extraction was relatively slow, the mid-1950's saw

a revival of prospecting activity by the Geological Survey Department and by several international companies. The intensified prospecting activity led to several important discoveries - copper and nickel occurrences at Selebi-Pikwe, Matsitamma and Selkirk-Phoenix; diamonds at Orapa; coal at Morupule and Mmamabula. The details of these discoveries are outlined in the introductory chapters of Section III.

Whereas at independence there was little hope of reducing the budgetary dependence upon Britain, a few years after independence the mineral discoveries provided the means for rapid economic development. In order to exploit these mineral resources Botswana will have to rely upon the capital and expertise of large international mining corporations, and the remainder of this dissertation is concerned with the question of direct foreign investment in a less developed country - Section II is a general survey of the current literature and Section III is an attempt to apply the ideas outlined in the survey to the copper-nickel industry in Botswana.

NOTES TO CHAPTER 2

1 Southern Africa is defined to include Botswana, Lesotho, Swaziland, South Africa and South West Africa (Namibia).

2 See inter alia, Customs Union Agreement 1910 and 1969; International Monetary Fund, African Department, 1971; Turner; Lombard, Stadler and Van der Merwe; Robson; Landell-Mills (1971); Cowen.

3 See Muzorewa (1972, 1974).

4 Muzorewa (1974) estimates that, in the early 'seventies, Botswana would have earned approximately R 542 000 per annum from their currency backing.

5 See Wilson.

6 See National Development Plan 1970 - 75; 1973 - 78; also Jackson.

7 "Non-freehold" effectively refers to the traditional agricultural sector. It does not include activity in the Tuli, Gaborone and Lobatsi Blocks, the Tati Area or the Ghanzi Farms.

8 For early mining history see Boocock; Pim Commission; Rey; Gordon.

S E C T I O N II

The Theory of Direct Foreign Investment in Less Developed Countries

CHAPTER 3

A Theory of Direct Foreign Investment

3.1 Introduction

There are basically three channels of international resource transfer. Firstly, portfolio investment, which includes the raising of capital by international bond issues and investment in foreign stock markets; secondly, official aid programmes; and finally, by means of direct foreign investment (DFI).

I do not intend analysing the rise (and fall) of these various channels in any detail[1] because obviously the major reason for focusing on direct foreign investment arises from the nature of the case study which is most definitely an example of private DFI. Suffice it to say however, that in the half century prior to the First World War international bond issues predominated with England being far and away the major international creditor. It is interesting to note that even at this early stage the majority of United States (US) owned foreign assets were in the form of direct investments rather than foreign bond holdings.[2]

Official aid began to assume importance after World War I although in the post Second World War era the magnitude of official aid transfers increased rapidly
Moreover this period is characterised by the rise of multilateral aid bodies, the International Bank for Reconstruction and Development (World Bank) dominating the field.

What are the outstanding characteristics of DFI? Or, put another way, is there any satisfactory definition of DFI? Possibly two of the most outstanding characteristics of DFI are that firstly, it implies that the transferor retains some element of control over the resources transferred. Secondly, DFI involves the transfer of a package of resources, that is, it does not merely consist of the transfer of financial capital but also technology, skilled manpower, material inputs and other varied resources. But it is extremely difficult to apply either of these crucial characteristics in constructing a rigid definition of DFI. To assert that because the investor owns, let us say, 49 per cent of the share capital of a particular venture nominal control is absent, and so too therefore is the phenomenon of DFI, is clearly arbitrary. Similarly to assert that because some element of a predefined package of resources is not in fact part of the resource transfer and, therefore, does not constitute DFI, is similarly unsatisfactory.

Whilst acknowledging the importance of these characteristics it is probably preferable to define DFI in terms of the unit responsible for the transfer of the resources, namely the multinational corporation. This of course begs the question, "what is a MNC"? Kindleberger (1969) distinguishes between the national firm with foreign operations, the multinational firm, and the international firm - the dividing lines drawn by Kindleberger are highly arbitrary (even metaphysical) and appear to depend on the behavioural characteristics and awareness (or lack thereof) of a national identity. Vernon's (1971) definition is considerably more functional relying, as it does, on the number of countries in which the firm operates, six subsidiary operations being considered sufficient for

the attainment of multinational status. Dunning's (1971 b) broad definition embracing, as it does, all firms which operate and control income creating activities in more than one country, is possibly preferable, although it does raise the problem of defining "control" and "income creating activities".

These various definitions, though important, frequently involve the participants, in hairsplitting debates[3] and, once again, it is possible to fall back on the nature of our particular case study for, whatever criteria one chooses, the companies operating in Botswana, the Anglo-American Corporation and American Metal Climax, may be designated multinational corporations. Thus given that private DFI inevitably requires the active presence of a multinational corporation it is, in light of the attempt made below to assess the host-country implications of DFI, necessary to outline the characteristics of the MNC.

Two assertions frequently made when the MNCs are discussed concern their large size and the oligopolistic nature of the market in which they operate. Raymond Vernon's (1971) massive research project into US MNCs provides some illuminating empirical evidence regarding both assertions. Using "Fortunes'" list of 500 top US companies Vernon classifies 187 as "multinational".

In terms of sheer size the 187 dominated the remaining 313 giants in the top 500. In 1964 the sales per enterprise of the 187 averaged $ 972,3 million as against $ 283,2 million for the 313 national firms; in the same year the MNCs employed, on average, 35 800 people, whilst the national corporations employed only 11 500 people;

in 1965 the 187 averaged 76 US plants per enterprise, whilst the 313 nationals operated on average 34 US plants. The profitability figures reflect a similar domination, with after tax earnings as a percentage of sales for the 187 averaging 7,2 per cent, and for the 313 nationals 5,9 per cent; after tax earnings as a percentage of capital investment averaged 13,3 per cent for the multinationals, and 11,1 per cent for the nationals.

Furthermore the rapid growth in importance of the firms' foreign operations is evident. Vaitsos (1972) cites a study undertaken by Furtado which indicates that between 1955 and 1964 the sales of US owned manufacturing subsidiaries abroad grew by 170 per cent whilst in the same period their sales in the US market grew by only 50 per cent. At the turn of the century Vernon's 187 MNCs controlled only 7 manufacturing subsidiaries. By 1950 this had grown to 988 and by 1967 had mushroomed to 3 646. The nine US owned petroleum extractive MNCs controlled 24 extractive subsidiaries in 1930 and 96 in 1967; the nine non-petroleum mineral extractors controlled 17 subsidiaries in 1930 and 45 in 1970.[4]

The size of the average MNC is formidable in relation to the giant US economy and particularly formidable in relation to the industry of which it is part. It is thus viewed with considerable trepidation in the economies which play host to DFI. The Canadians (Hymer, 1967), Australians (Penrose, 1956) and New Zealanders (Kindleberger, 1969) entertain a deeprooted fear and suspicion of the giant MNC - obviously the size of US investment in, for example, Canada, constitutes a small portion of total capital formation in that country but it appears

that the strategic heavy industrial sector is firmly controlled by foreign interests. The small less developed countries (LDCs) find themselves in a more unenviable position where their export sector or, for that matter, the great portion of their industrial assets are controlled by one or, possibly, two or three foreign companies who may easily co-operate in a manner which increases their already great bargaining strength vis-à-vis the host government.[5]

It is more difficult to validate the assertions regarding the structure of the market within which the MNCs operate. Vaitsos (1971) cites studies which indicate that in 1957 15 out of 1 547 US firms controlled 35 per cent of total manufacturing investment abroad. In the mid-sixties 46 British firms controlled 71 per cent of all British owned foreign assets and three firms controlled practically all British owned foreign assets in the petroleum industry.

Vernon (1971) admits to considerable difficulty in measuring the oligopolistic position of the markets of the 187 MNCs, measurement being thwarted by the diverse lines of production in which many of the corporations engage. Nevertheless a concentration index was established by calculating the ratio of the sales of the four largest firms in each industry to total sales of the industry. The results were 43,2 per cent for the 187 MNCs, 40,9 per cent for the 313 nationals, and 37,9 per cent for US industry as a whole. R&D and advertising expenditure, generally sound indicators of an oligopolistic market, assist in verifying the assertion. Corporate funded R&D as a percentage of sales for the 187 amounted to 2,48 per cent, and 1,85 per cent for the remainder of Fortunes' 500; advertising expenditure as a percentage of sales was

2,52 per cent for the multinationals and 2,39 per cent for the remaining 313. But without calculating concentration ratios or advertising expenditures the assertions regarding the oligopolistic nature of the MNC's market, may be verified on a purely impressionistic basis - six US companies in the petroleum industry controlled foreign assets worth $ 20 billion in 1969 and although non-American competition in the petroleum industry is significant, no more than a handful of firms control this industry. The same may safely be said of the copper, aluminium, and, certainly, the nickel industries.

Thus whilst it is not necessary to agree with Servan-Schreiber's assertion that the European economy is "in a state of collapse" in the face of a "foreign challenger (who is) breaking down the political and psychological framework of our societies" (p. 12). Nor indeed is it necessary to accord full support to his oft cited prophecy that "fifteen years from now the world's third greatest industrial power, just after the United States and Russia, might not be Europe, but American industry in Europe" (p. 17). Nevertheless, when attempting to assess the implications for the host country of DFI, account must be taken of the size of the average unit responsible for DFI and the structure of the market within which it operates.

3.2 A Theory of Direct Foreign Investment

Attempts to explain the phenomenon of DFI incorporate many different approaches.[6] Many attempts have been made to adapt the framework of capital theory, which purports to rationalise factor flows by reference to the international

interest rate structure (Mundell, 1960), but it is recognised that whilst capital theory may be useful in explaining portfolio investment it does not significantly advance our understanding of the MNC or, indeed, of DFI in general. Capital theory cannot, in essence, account for the fact that DFI does not involve a change in ownership of the resources transferred. Nor, of course, can it incorporate elements of the DFI package other than financial capital - the transfer of technology, skilled manpower, etc. cannot be rationalised by differential interest rates.

Attempts have also been made to use the framework of international trade theory (Mundell, 1967). Kindleberger (1969) succinctly points out that under conditions of perfect competition DFI would simply not exist for,

> "... in these conditions, domestic firms would have an advantage over foreign firms in the proximity of their operations to the decision making centres, so that no firm could survive in foreign operation. For direct investment to thrive there must be some imperfection in the market for goods and factors, including amongst the latter technology, or some interference in competition by government or by firms which separates markets" (p. 13).

Johnson (1970) has attempted to incorporate the question of technology transfer into the international trade theory approach. Ultimately however the trade theory approach places the nation state and its attempt to optimise its welfare function at the centre of its analysis at the expense of a rigorous analysis of the MNC itself (Murray, 1971, 1972).

Two other approaches to the problem of DFI have achieved widespread recognition in the recent past. The first may

loosely be termed the oligopoly approach which is basically an attempt to extend the theory of the growth of the firm to the international economy (Hymer, 1960, 1970; Kindleberger, 1969; Girvan). The second is an ingenious adaptation of location theory (Murray, 1972). The theoretical framework employed in this dissertation comprises an attempt to combine the oligopoly approach with location theory.

Any attempt to explain the growth of DFI and to assess its implications for the host country must recognise:

a) the size of the unit which is primarily responsible for the international transfer of resources and the economic power which it is thus able to exercise vis-à-vis the less developed economy within which it is located;
b) the oligopolistic structure of the market within which the large MNCs, particularly those engaged in mineral extraction, operate;
c) the relationship of the subsidiary to the corporate structure of which it is part. This latter point is of crucial significance. In Girvan's excellent analysis of MNCs in mineral export economies his fundamental proposition is that,

> "... the functioning of these industries in the national economies in which they are phsyically located can be better understood by an analysis of their functioning in the corporate economies of which they are an organic part. Such problems as their dependence on foreign demand, prices and

> decision making; the large amount of profit repatriation and its reflection, the low share of the industry's value which is 'returned' to the national economy; and the lack of integration of the industry with the national economy are the surface manifestations of the institutionalised relationships between subsidiaries and their parent firms ...
>
> The pursuit of this idea led to the need for the development of the notion of a corporate economic system as conceptually quite distinct from a national economic system, although obviously the two do overlap in the real world" (p. 491);

d) that DFI does not only, or even most importantly, consist of a flow of capital funds but also a flow of knowledge, technology, skilled manpower, etc., and that these parts of the resource transfer cannot be accepted or rejected by the host country as mutually exclusive entities. In other words the resources mobilised by the MNC are transferred as part of a "package deal" and it serves no purpose to construct a model which implies acceptance of, for example, the capital fund element of the package and rejection of the technology element;

e) that the MNC is part of a, predominantly capitalist, international economic system and that its decision can only be made within the limitations of that framework. This point will be elaborated in the analysis that follows. It has considerable bearing on the question of the location of productive activity in the international economy.

The oligopoly model of DFI accords specific recognition to the size of the productive unit responsible for the greater part of DFI, and to the structure of the markets within which they operate. In fact, the model is based on the observation that the prime mover of capital and other resources between nations in a firm of great size situated within a highly concentrated market.

The fundamental hypothesis is that firms expand in the international sphere for the same reasons and in materially the same manner as they expand in the national economy. The movement of the firm into the international arena is seen as a further step along a historical continuum.

The Industrial Revolution might be seen as the starting point and ever since then the representative firm has shown a tendency to increase in size from the small (pin) workshop of the Wealth of Nations, to the Marshallian firm, the national corporation, and finally to the multi-national corporation.

The Industrial Revolution and the small factories and workshops which characterised that period of economic history were thus the precursors of the contemporary MNC. Prior to the Industrial Revolution there were, of course, large companies operating on a global scale but they are to be distinguished from the contemporary MNC insofar as they were,

> "... like dinosaurs, large in bulk, but small in brain, feeding on the lush vegetation of the new worlds.
>
> The activities of these international merchants, planters and miners laid the groundwork for the Industrial Revolution by concentrating capital

> in the metropolitan centre, but the driving force came from the small scale capitalist enterprises in manufacturing, operating at first in the interstices of the feudalist economic structure, but gradually emerging into the open and finally gaining predominance. It is in the small workshops, organised by the newly emerging capitalist class that the forerunner of the modern corporation is to be found" (Hymer, 1972, p. 115/16).

Thus, in effect, the capital accumulated during the era of merchant capitalism was one of the important factors giving rise to the era of manufacturing or industrial capitalism, whence the prevailing mode of production was centred on a free labour market, the members of which sold their labour to those who had accumulated capital during the era of merchant capitalism. The capitalist's power therefore rested in the ownership of the means of production and in his ability to reap the profits of co-operation (division of labour). The capitalist thus brought together labour in his workshop, accumulated additional capital (largely as a result of the productivity increase generated by an increased division of labour), reinvested this capital in his small workshop, and so widened the scope of his activities giving rise to the Marshallian firm. The structure of the enterprise did not change materially as a result of the advance from Smith's workshop to Marshall's firm, but the rapid growth of the US economy in the last quarter of the previous century, accompanied by the great merger movement of that period, gave rise to the great national firm.

The spread of what was formally a tightly controlled, localised family enterprise over a wide geographical area necessitated an alteration in the mode of business organisation, characterised largely by the need for a

vertical division of the management function. For the first time the executive was placed in a position of authority over other executives. The parent company retained control of overall strategy, whilst the executives in charge of the individual subsidiaries concentrated their energies on the activities of their particular subsidiaries. This, crudely, is the mode of organisation of the giant multinational.

The obvious omission from the analysis thus far is the failure to outline the reasons for the growth of the unit from the small family firm to the giant MNC. The major factors prompting the growth in the size of the firm were the advances made in technology, both production and communication, the necessity for minimising the added risk of large-scale capital commitment, the economies to be derived from large-scale production, and the widening market for both consumer and capital goods. Norman Girvan notes that,

> "It appears that the emergence of the integrated firm was an inherent and possibly indispensible part of the revolution which took place in the scale of production and demand, in the level of technology, and in the quantity of capital utilised in production. With much more capital committed to production on a much larger scale, firms had to minimise the risks of investment and assure their facilities of full capacity operation by acquiring their own raw material supplies and marketing outlets. All stages of production and marketing had to be brought as far as possible within the frontiers of corporate control. Those firms which got a headstart, because of strategic control of one stage of the industry or the technology of production, or because of entrepreneurial foresite and

> initiative or because of a combination of all three, were able to absorb in one way or another the weaker and more vulnerable firms. This process continued until a small number of firms faced each other, each with its own supplies of raw materials and its own marketing outlets." (p. 494).

The factors accounting for the spread of the large national corporations into the international economy are identical in almost all respects, and it is in this manner that the greatest part of capital, technology, knowledge, etc. is transferred across international boundaries.

The "oligopoly school" stresses the question of bargaining (see particularly Vaitsos, 1970 b, 1972 a; Penrose, 1968, Girvan), the bargaining line being drawn between the MNC on the one hand, and the host-country government on the other. Thus, within this framework, the distribution of bargaining strength is of paramount importance.

We must however avoid exaggerating the power and the role of the MNC. Kindleberger (1969), one of the most enthusiastic propagators of the oligopoly approach, asserts somewhat hyperbolically that "the nation state is just about through as an economic unit"[7] because "... the multinational corporation is evolving into the international one faster than the national governments are girding themselves to produce adequate policies to meet it" (p. 210). Kindleberger's argument implies that, in the face of this alleged tendency on the part of the multinational to acquire an international character, that is, to loosen its ties with any particular state (for example, Lever Brothers, Shell-BP, etc.), the nation state will find it increasingly difficult to protect its individual national interest. Thus, as Penrose (1971)

points out, Kindleberger's view would appear to coincide with Galbraith's vision of a "new industrial state", a world managed by the technocrats of the large corporation.[8]

Penrose (1971), however, accuses Kindleberger of arguing by exaggeration and asserts that as long as the nation state retains its political sovereignity it will not relinquish significant aspects of its economic autonomy to the multi-, or indeed, international corporation. Thus Penrose argues that there are, within the bargaining framework, certain important options available to the nation state, and that these alternatives will be bolstered by firm action on the part of existing international bodies and by the formation of interregional associations of the less developed countries.

Penrose's criticism of Kindleberger's extremist views is undoubtedly important. However insofar as it implies rigorous discussion of every policy alternative open to the LDC it will not be examined in detail. Whether or not particular policy alternatives can be detailed in a general theoretical statement is questionable. The patterns of DFI and development are sufficiently similar to permit general analysis but a discussion of policy alternatives implies a rigorous analysis of the socio-economic situation in each LDC.

In addition one must ensure that the role of the MNC in the international economic system is not overemphasised. The MNC reflects the growth and direction of the international economic system, and, largely because of its size, it provides us with a transparent view of the workings of that system, but it does not determine interrelationships or, more particularly, the location

of productive activity, within the international economy. In essence, whilst the classical school views the international economy as a summation of sovereign independent nation states, the oligopoly approach analyses the international economy as though it was a summation of individual corporate units. Murray, on the other hand, argues that

> "... it is more helpful to see it as a single, predominantly capitalist system, in which the geographical distribution of particular structural features of a capitalist system will be governed by market determined laws of location and only secondarily by the actions of nation states. Competitive firms, particularly international firms, become the dominant units of the system. States, which in part reflect the interests of these firms, are subordinate, modifying elements" (1972, p. 167).

Thus, in terms of Murray's model, the activities of the nation state are dominated by the activities of the MNCs. Murray however takes the analysis a step further and by ingenious adaptation of Location Theory and the Theory of the Firm, shows how the geographical distribution of production in the international economy is governed by market determined laws of location.

In certain important respects Murray's analysis of the location of production in the international economy does modify and bolster certain of the conclusions reached by the oligopoly school. In the final analysis, however, it appears that all Murray is saying is that the MNCs do not determine the ultimate habitat of their productive factors in vacuo, but that there are certain underlying laws of market determined location with which they must comply and which cause the international polarisation of productive resources and activity.

The mechanics and implications of Murray's analytical framework, so painstakingly outlined in his 1972 article, will not be detailed at this stage but will emerge in the analysis that follows.

NOTES TO CHAPTER 3

1 For excellent empirical and theoretical surveys of international capital mobility see Cooper, R. N.; Cooper, R. N. and Truman; Dunning (1972 b).

2 It is also sometimes difficult to distinguish between assets in the form of bonds and DFI in the British case. Thus railway investments in South America and India might be in either form.

3 See Dunning (1973 b) for a survey of the debate.

4 This only refers to subsidiaries engaged in mineral extraction. The corresponding figures for all subsidiaries in the petroleum industry are 212 and 1 442, and, in the non-petroleum extractive industry, 32 and 417.

5 For examples of corporate collusion in Zambia see Faber and Potter; in the Caribbean, Girvan and Jefferson; in Latin America see Mikesell (ed.).

6 For a survey of the theories of DFI see Dunning (1973 b).

7 He continues: "General de Gaulle is unaware of it as yet and so are the Congress of the United States and rightwing know-nothings in all countries. Tariff policy is virtually useless, despite the last-gasp struggles of the protectionists to keep out Japanese steel, Danish cheese, Middle East oil, Brazilian coffee, and of the Johnson administration to get the American public to stop going abroad. Monetary policy is in the process of being internationalised. The world is too small. It is too easy to get about. Two-hundred-thousand-ton tankers and ore carriers and containerisation, airbuses and the like will not permit sovereign independence of the nation state in economic affairs." (p. 207/208).

8 It would also closely coincide with Karl Kautsky's vision of "ultra-imperialism", that is "... the joint exploitation of the world by internationally united finance capital in place of the mutual rivalries of national finance. Such a new phase of capitalism is at any rate conceivable" (cited Lichtheim, p. 105/06).

CHAPTER 4

Direct Foreign Investment and the Transfer of Technology

4.1 Introduction

The lack of access to sophisticated techniques of production (or, what is the same thing, "knowledge") is frequently viewed as one of the most severe constraints inhibiting economic development. Thus, insofar as technology is one of the most ubiquitous elements of the package of resources transferred by the process of DFI, it appears that DFI will almost inevitably relax a serious constraint facing the planners in a less developed economy.

The question of technology transfers cannot however be analysed in isolation from the socio-economic conditions prevailing in the recipient country, and it is frequently argued that the process of DFI, through the agency of the MNC, transfers technology the characteristics of which are fundamentally unsuited to the conditions prevailing in the host country.

The remainder of this chapter will be devoted, firstly to a discussion of the choice of technique and the characteristic features of the technology transferred by the process of DFI. Secondly an attempt is made to assess the implications for the host country of the technology transferred. The view that preferential access to technology (or knowledge) constitutes a source of monopolistic advantage is discussed in some detail.

When the host country implications of the technology transfer are discussed the analysis will be conducted at the most general level. The characteristics of the technology transferred are important factors determining the effect of DFI on the host country's labour market, government revenue, and linkages (see Chapter 5) and therefore on the Balance of Payments (see Chapter 6). It is also a significant determinant of the host country's distribution of income (see Chapter 7). It will be argued that the process of DFI transfers technology of a characteristic type, an understanding of which provides an essential background for a discussion of the subject matter of Chapters 5, 6 and 7.

4.2 The Choice of Techniques[1]

The question of the choice of techniques is generally analysed in terms of the observation that the "ideal" LDC is characterised by an unlimited supply of cheap, unskilled labour, and scarce and consequently costly supplies of capital. Thus any attempt to arrive at an optimum choice of technique will be geared towards employing large quantities of labour and spreading the scarce capital over as wide a spectrum as possible.

The simple neo-classical model assumes that a wide spectrum of efficient techniques is available and that labour and capital are perfectly substitutable. However, as Stewart points out,

> "This view is completely unhistorical. Techniques of production are ways of producing goods - generally machines. Each method of production has to be invented, developed and used at a particular point in time. The range of techniques

> available to produce a particular good arises from the historical development of the industry in question." (p. 103).

It is hypothesised that the choice of technique adopted by the foreign investor is exercised primarily by the MNC and not by the LDC itself. It is not suggested that the selection criteria employed by the MNC and the LDC are always contradictory. Nor, indeed, is it suggested that the LDC planners are unable to influence the choice in any way - an adjustment in depreciation allowances, the provision of a subsidy per worker employed, etc., will conceivably influence the firm's decision. It is however argued that, because of the technological dependence of the underdeveloped world, the range of alternatives will be severely limited, and therefore, insofar as it is possible to distinguish between a corporate and a national economy, there will exist two sets of factor proportions and two objective functions. It is of greater practical relevance to determine the factors affecting the corporation's choice of technique than those affecting the recipient's choice. The analysis does, of course, beg one important question, that of the choice of industry. That is, if it can be rigorously shown that the choice of technique adopted in any particular industry will, for whatsoever reason, give rise to a sub-optimal allocation of resources, the obvious (or perhaps "first-best") implication is that the resources would be better employed in another activity. This argument ignores the possibility that the resources will not be made available for alternative employment and is, under these circumstances, a weak argument. However, without further argument, it is assumed that the LDC wishes to extract its mineral resources and the possibility of employing the necessary factors in an alternate manner is not considered at this point.

The technology transferred by the MNC to the LDC is generally technology that has been developed for use in the industrialised metropolitan economies. The technology is thus geared towards large scale production and is specifically designed to absorb the relatively abundant supply of cheap capital saving on the scarce factor, labour. Thus when transferred to the LDC it uses relatively little of its abundant supply of cheap labour and, because of the sophisticated nature of the technology, much of the labour that it does use must be imported from the metropolis.[2] On the other hand it uses a relatively large quantity of the supposedly scarce factor, capital.

This would appear to be an essentially irrational act on the part of the investor. This is however not the case. Firstly, as has been noted above, the technology has already been developed in the economically advanced source economy. R&D is an expensive process, relying on certain inputs which are more readily available in the source than in the host country. Furthermore demand for producer goods arises mainly in the advanced economies and production will thus be geared towards satisfying that demand. It might be argued that the earlier, relatively labour-intensive products of the R&D process should be used in the LDCs, however much of this early machinery is obsolete and expensive to maintain. The Japanese method of copying the techniques of the advanced Western economies might meet with some success but even this requires a basic technical and scientific infrastructure. Moreover, particularly, in the case of low grade mineral extraction, there is

usually a certain minimum scale of operations, and in order to achieve this scale relatively sophisticated technology must be employed. Thus as Merhav points out,

> "The technical progress of the entrepreneur in the underdeveloped economies is not limited, like that of entrepreneurs in an advanced economy, to the rate of invention and scientific advance in his own country or in other similarly advanced economies. He has the advantage of the latecomer, and can make much greater relative advances than the entrepreneur in the advanced economy ...
>
> The underdeveloped country, one might say is a case of 'Economic Growth with Unlimited Supplies of Technical Progress' - but it depends for that progress on the advanced countries." (p. 50)

One obvious solution is to raise the price of capital in the LDC. This need not necessarily have any noticable effect, because the MNC is not subject to the same constraints that face the LDC. Wherever the MNC chooses to invest it will be able to make use of its privileged access to international capital markets. Moreover it may capitalise its often vast reserves of undistributed profits.[3] The MNC does not rely on the supply of local capital funds. Thus if the MNC does use domestic capital funds is is likely to be highly interest elastic with respect to its use of local capital but an increase in the domestic rate of interest is not likely to affect its capital formation because of its ability to draw on alternative sources (Dunning, 1973 a).

The obvious solution of this technological dependence lies in the establishment by the LDC of a domestic capital goods sector. This possibility is severely constrained by several important factors one of which is the limited

4.3 The Host Country Implications

Under competitive market conditions the price effects arising from an added inflow of factors (for example, technology) determine inter-country distribution.[4] However, because of the public good characteristics of knowledge,[5] the price of technology cannot be determined on a competitive market and is determined by bargaining between the owner of the information (the MNC) and the purchaser of the information (the LDC).[6] The owner of the information is able to extract a monopoly rental, and, moreover, is able to perpetuate this monopoly rental by means of patent and tie-in arrangements.[7] Private ownership of knowledge thus constitutes an insuperable obstacle to welfare optimisation.

The above argument applies whenever knowledge is privately owned although the conclusions might be of particular relevance to the case of a LDC because of the inequitable distribution of the bargaining powers between the MNC and the LDC. Johnson in fact argues that the MNC behaves like a discriminating monopolist and, because he assumes that the LDC will have a more elastic demand curve for knowledge intensive products than other purchasers of technology, asserts that the LDC will be charged a lower price. There is however sound reason for assuming that the LDC's demand curve will be less elastic than that of the other purchasers - the technoloy element cannot be extracted from the package of resources transferred by DFI and if the LDC is to extract minerals on a large scale it will require considerable capital, expertise and access to sophisticated technology. The demand curve for technology is derived from the "demand curve" for "industrialisation"

or "development" and is likely to be highly inelastic.

The characteristic features of the techniques of production used by the MNC are the important determinants of the impact of the technology transfer on the LDC. What does this reliance on capital intensive, foreign technology imply for the host economy? This is, broadly speaking, the subject matter of the remainder of this thesis but it will probably be useful to outline the answer to this question, albeit in the most general terms.

Reliance on foreign technology provides the MNC with a useful avenue of profit remission. This does not only refer to the question of royalty payments or licensing fees, but, more importantly, to the firm's ability to utilise inter-firm accounting techniques which effectively allows the firm to show its returns in the geographical area of its choice. If the knowledge was available locally and the necessary capital equipment was produced domestically the MNC would not be able to remit profits to the parent economy with such ease. Reliance on imported, expensive capital equipment carries the obvious balance of payments implications and places considerable strain on foreign exchange reserves. But still of greater importance is the fact that both these points clearly raise the controversial question of the continued underdevelopment of the less developed world. They, in essence, suggest that the means of income generation, the means of production will be centralised increasingly in the already developed economies. This is, of course, a crucially important question which will be raised at a later stage. A related problem concerns the extent of linkage investment encouraged by

the MNC's subsidiary. The structure of the MNC certainly inhibits the creation of link industries in the domestic economy. Moreover it is reasonable to assume that a technologically sophisticated, capital intensive core industry will, in general, require inputs which are produced in a like manner. Thus the linkage effects will be generated in the source economy and, where they are generated domestically, the structure of the link industry will be similar to that of the core industry.

An important policy goal of the typical LDC is that of employment creation. In order to attain the goal the planners will attempt to encourage the growth of a labour intensive industrial sector. Dependence on foreign technology encourages capital intensity which implies both a smaller absolute number of workers employed and a differently structured work force. The wage and employment policies of the MNC will be an important determinant of domestic income distribution. The importance of this latter point cannot be over-emphasized because, although DFI usually generates rapid economic growth - using Gross Domestic Product, Gross National Product, national income per capita and other commonly applied indicators - we should not treat society as a monolithic entity, and there is reason to believe that the activities of the MNC promote the welfare of select groups within that society.

As pointed out above, the remainder of this section will consist of an attempt to elaborate upon the points mentioned above. The process of DFI cannot be divorced from the characteristics of the MNC which, in turn, presuppose a certain technological structure. It is to an analysis of the implications of the corporate and technological structure situated, as they are, within a predominantly capitalist international economy that I now turn.

NOTES TO CHAPTER 4

1 For excellent surveys of the theory see Sen, Stewart, Merhav.

2 In the next chapter it is argued that the structure of the LDC's labour force actually encourages the use of capital intensive techniques.

3 Similarly it need not be severely constrained by a shortage of skilled and technical manpower in the LDC - it may draw on its already established cadre of trained manpower.

4 See Vaitsos (1972 a); Johnson. This can lead to a deterioration in the terms of trade and therefore "immiserising growth" (Bhagwati). This problem will be overcome by an optimum tax on capital or on "technical progress" (Johnson; Kemp; Negishi).

5 By "public good characteristics" I refer to indivisibility and incomplete appropriability. Knowledge is, by definition, indivisible. Although there are devices available whereby knowledge or information may be appropriated (e.g. patents) the technical characteristics of knowledge are such that its use by one party does not preclude its use by any other party. Moreover, as Arrow points out, patent laws would have to be unimaginably complex to enable full appropriation of a commodity as intangible as knowledge. Certain properties of the demand for information also prevent welfare optimisation. In order to assess the economic value of the information the potential buyer will have to possess the information but then he will have acquired it without cost. If the seller was able to appropriate fully the information this problem would be avoided and therefore, because of incomplete appropriability, the buyer will have to base his decision to purchase the information on sub-optimal criteria. Essentially the buyer requires "knowledge about knowledge" but this is impossible because of the principle of incomplete appropriability - see Arrow.

6 For elaboration of this argument see Vaitsos (1970 b). The process of price determination is complicated further by the fact that the purchaser is a subsidiary of the seller and the price will be determined virtually unilaterally.

7 For an analysis of the use of patents in LDCs see Penrose (1973); Vaitsos (1970 a, 1970 b, 1972 b). For a discussion of tie-in agreements see Vaitsos (1970 a). The product cycle theorists recognise that knowledge constitutes a source of monopolistic advantage but argue that the process of competition will reduce this advantage (see inter alia Vernon (1966); Gruber, Mehta and Vernon). They fail to recognise the importance of patents and tie-in agreements and they do not realise that the transfer of technology across international borders is an intra-firm transfer and therefore the knowledge is not transferred into new hands.

CHAPTER 5

DFI and the Host Country Implications - Labour, Government Revenue and Linkages

5.1 Introduction

This lengthy chapter attempts to assess the impact made by DFI on the host country's labour market and on the revenue accruing to the government. It also attempts to measure the impact of DFI in terms of the linkages generated by the foreign controlled industry. However, before attempting to assess the impact of DFI, the criteria in terms of which the assessment is made must be outlined clearly.

5.2 The Assessment Criteria

I will use two distinguishable, but closely interrelated sets of criteria and, in so doing, have been strongly influenced by the criteria used by the Botswana Government.[1] The first set of criteria may somewhat loosely be termed the "narrowly economic" criteria, whereas the second set attempts explicitly to introduce certain of the important politico-economic variables.

Killick, in an attempt to assess the impact of DFI in the Sierra Leonean diamond mining industry, attempted to calculate the value-added by the MNC. A slightly altered version of the tabular lay-out employed by Killick is reproduced below.

The contents of the table will be analysed in this chapter and in chapters 6 and 7. Item (b) is analysed when linkages are discussed; item (d) is discussed when the wage and employment policy of the MNC is analysed; discussion of items (e), (f) and (g) is incorporated in the analysis of the impact of DFI on government revenue. The contents of column (b) are discussed in chapter 6 when the impact of DFI on the external accounts is analysed. An analysis of this nature makes use of the normal national accounting indicators - domestic value added is, in fact, a measure of the industry's contribution to Gross Domestic Product whilst the national value added measures the industry's contribution to the Gross National Product. The table does not take account of the multiplier effects generated by the industry although these are dealt with in part by item (b). Despite this omission from the table the analysis will attempt to take account of the multiplier affects.

These measures may be misleading particularly insofar as the implied goal is the maximisation of each item in column (a) of the table.[2] For this reason it is necessary to qualify these criteria by the use of a somewhat broader set of criteria.

Dudley Seers (1972) asserts that development must be viewed in terms of creating conditions conducive to the realisation of the potential of human personality. In order to attain this goal, continues Seers, the planners must concentrate an eliminating poverty, providing employment, and ensuring an equitable distribution of the national product. These criteria are not very functional and are very difficult to measure (particularly the "poverty" criteria), but they are no less important than the quantifiable national accounting measures.

TABLE 1: Expenditures of Mining Companies and their Disposal

	Expenditures (a)	Mean Foreign Exchange Requirement (b)	Expenditures on local goods and services (c)
a. Gross Output (a)			
b. less Material Inputs 1. Imported 2. Locally Produced			
c. Gross Domestic Value Added			
of which:			
d. Wage and Salary Payments 1. to expatriates 2. to citizens			
e. Direct Tax Payments			
f. Depreciation			
g. Profits			
h. Gross National Value Added (c minus g)			
i. Net National Value Added (h minus f)			
j. Item (i) as % of item (a)			
k. Item (i) as % of item (c)			

(a) taken as equivalent to export values

The employment criterion is included in the value-added computation, but the important omission from Killick's table is the question of distribution, and by this is meant not merely distribution of income but, more importantly, distribution of power, that is, relative access

to the means of production. Chapter 7 is devoted to a discussion of the question of distribution but this does not in any way imply that discussion of distribution is omitted when the other criteria are evaluated. The broader criteria are not added to the "narrowly economic" criteria, they serve to qualify the latter and are discussed concurrently. It has already been suggested that DFI raises the question of continuing underdevelopment of the periphery in so far as the distribution of gains from the project and the ability to indulge in large scale investment is increasingly centralised in the industrialised core areas. The process of DFI also raises the question of the development of a secondary core within the underdeveloped periphery and it might be argued that the development of this secondary core is achieved at the expense of the continued underdevelopment of the internal periphery.

The remainder of the present chapter attempts to assess the impact of DFI on labour, linkages and government revenue emphasising the question of value added. The following chapter will concentrate on measuring the value retained and chapter 7 will focus upon the question of distribution and the broader politico-economic criteria.

5.3 Labour

It has already been suggested that it would be to the MNC's advantage to use techniques of production similar to those employed in the industrialised economies. Thus the techniques employed would be of a capital intensive nature supposedly ignoring the factor proportions prevailing in the host country. Whilst the MNC's choice of techniques can be easily rationalised in terms of the cost

and location of R&D, the capital resources of the MNC, and the limited range of techniques available, it would appear that in terms of relative labour availability the MNC's choice remains essentially irrational, that is, if all other things remained equal it would be to the corporation's benefit to employ labour intensive techniques of production in the LDCs.

A factor is, however, only cheap or costly in relation to its productivity. Thus, to assert that a LDC is characterised by a plentiful supply of cheap labour is meaningless until we evaluate the quality of the labour force. Any large scale industrial activity presupposes some degree of training or, at least, familiarity with an industrial milieu, from its workforce. Thus, despite the apparently low price of the LDC's workforce, it is clearly in the MNC's interest to employ as small a portion of the local workforce as is feasible.

Arrighi points out that capital intensive techniques do not only require an absolutely smaller number of workers (in relation that is to labour intensive techniques) but they also require a differently, structured workforce. Labour intensive techniques require a workforce in which unskilled and skilled workers predominate, whereas capital intensive techniques presuppose a workforce largely composed of semi-skilled operatives and high level manpower. By dividing complex operations into simpler processes, the producer simultaneously reduces his need for both skilled and unskilled workers and intensifies the need for semi-skilled operatives and high level manpower. Given the conditions facing a LDC it will be easier to overcome a shortage of semi-skilled operatives and high level manpower, than a shortage of

skilled artisans. If this is in fact the case the conditions in the LDC's labour market will favour the introduction of capital intensive techniques.

The high-level manpower requirement of the MNC generally exceeds the short run supply available in the LDC but this need not significantly constrain the activities of the MNC. The MNC has at its disposal a well established cadre of skilled and experienced managerial and technical personell. Moreover the supply of high level manpower already existing in the LDC can be easily attracted to the MNC by the company's greater ability to pay higher wages.

In order to establish a semi-skilled workforce the MNC will have to engage in a limited degree of training most of which will be provided "on-the-job". The semi-skilled workers already employed in government or other firms within the LDC's industrial sector are another potential source of labour for the MNC.

Obviously a particular labour force structure necessitates a particular wage structure. The upper reaches of the high level manpower force will be predominantly expatriate, although, often for public relations reasons, locals will occupy some of the top management positions (particularly in personell) and possibly some of the high level technical positions. The expatriates will have to be drawn from the labour market of the industrialised countries and their wage levels will reflect those prevailing in the source country market plus an additional allowance for working in the unfamiliar, unattractive environment of the LDC. The lower reaches of the high-level manpower hierarchy (e.g. middle management,

accounting clerks, trained secretaries, etc.) will be occupied by a combination of expatriates and locals. The wage level of the latter group of employees will be determined by two primary factors: first, for public relations reasons, the MNC will not pay the local employees a lower wage than the expatriates whose wage will be determined in the markets of the metropolis. Secondly, the wage rate prevailing in the local civil service may be an important factor determining the wage structure of the second order high-level manpower. The civil service wage structure is usually inherited from the days of colonial rule. When the civil service is localised, not only is the complex structure of employment often retained, but so too is the wage structure which was determined by the wages prevailing in the mother country.

The wage structure of the semi-skilled, predominantly local workers, is also of crucial importance. The labour force of most LDCs is characterised by widespread movement between the rural areas and the towns, that is, between bouts of industrial or urban employment and traditional rural employment. The worker is unable to earn sufficient income in either the towns or rural areas to maintain his family and therefore oscillates between the two. Arrighi argues that it is in the interests of the MNC that this migration be curtailed. In order to stabilise (or, in Arrighi's terminology, "proletarianise") this semi-proletariat, the MNC will have to cut the links existing between the town and the country by offering the workers a higher wage. The semi-skilled workers of the MNC are thus offered a wage rate above that necessary to attract them to the industry, but rather aimed at stabilising their employment in the

service of the MNC. The MNC's ability to meet these added labour costs is beyond dispute. Labour costs generally comprise five or ten per cent of the value of output (see Church), and the vast resources of the MNC ensure that the added cost of stabilisation are not viewed as a significant constraint. In any event, we may assume that the MNC will concentrate on stabilising its workforce only if the productivity increase generated thereby justifies the additional expenditure.

The above analysis is, however, subject to some doubt. It might be in the corporation's interests to encourage semi-urbanisation.[3] This argument suggests that the corporation benefits from the process of labour migration. By encouraging the worker to maintain his rural ties the corporation will pay a lower wage insofar as the workers income is supplemented and he is assured of a form of old-age pension (Meillassoux). Furthermore by preventing permanent urbanisation some of the socio-political problems associated with the existence of an industrial proletariat are avoided.[4] Scattered empirical evidence does, however, appear to indicate that average earnings in the foreign owned mineral extractive industries are considerably higher than those prevailing in the rest of the economy and that the workforce of the MNC exhibits greater stability (Church).

The wage and employment policy adopted by the MNC has several important implications for the host economy.[5]

Firstly, in so far as the MNC does succeed in stabilising it own small workforce, it might prevent the dissemination of the rudimentary skills acquired by its workers throughout the remainder of the economy. The much vaunted rise

in productivity, supposedly generated by the injection of skills into the host economy, would thus appear to be of a highly localised nature, that is, it would appear to benefit the MNC but not the economy as a whole. This brings to mind Becker's distinction between general and specific training for, in fact, the MNC provides a form of general training but, because of its ability to stabilise its workforce, is able to appropriate the lion's share of the return from the productivity increase. There are of course limits to the MNC's ability to appropriate this return. Evidence suggests that the numbers employed by the MNC tends to decline after the initial phase of production (and particularly after the completion of the construction phase) despite increasing output (Church, Mamalakis). Those workers laid off then go out into the wider economy equipped with certain skills which allow them to seek other employment or, possibly, to establish themselves as small scale entrepreneurs. In this sense, therefore, the MNC does offer benefits to the economy as a whole. It is important not to underestimate the magnitude of this benefit - Baldwin, in fact, appears to view it as among the most significant benefits arising from DFI in Zambia, though with considerable reservation. The impact of increased skills on the economy as a whole, ultimately depends upon the opportunities available to use these skills, these opportunities being strongly dependent upon the linkages generated by the extractive industry.

Secondly, in Church's words, "the tendency for relatively high wages paid in the resource industries to stimulate upward pressure on the level of remuneration in other industries and in government appears to be well established in our case studies", (p. 91). The higher wages paid by

the MNC are "justifiable" insofar as the relatively large amount of capital available per worker in the extractive industry raises the marginal product of each worker. But if the wage rate paid by the MNC sets the national wage, the corporations wage policy might well inhibit the development of secondary industry. Baldwin, in fact, identifies the impact on secondary industry as being "the most unfavourable repercussion of the high wage policy" (p. 197) adopted on the Zambian copperbelt. Wage costs constitute a far greater portion of operating costs in government and secondary industry than in mining, and therefore a percentage increase in wage costs raises total cost to a far greater extent in the secondary sector, forcing them to decrease employment and output or to raise prices to an uncompetitive level.

The mining sector obviously will generate some additional activity in secondary industry so that, in the short run, total employment in secondary industry will probably not decline absolutely after the wage rise. In the longer run, however, if the wage level in the mining sector sets the national wage level, secondary industry will be encouraged to reduce the number of workers in its employ by opting for more capital intensive techniques of production. The productivity of each worker will be higher than those employed under the previous wage structure but the government of a LDC cannot be concerned with output alone because of the existence of widespread unemployment or underemployment.

The revenue implications of the MNC's high wage-low employment policy are two-fold. The first relates to labour's rights as a third claimant on the returns from

the investment, and the second to the question of the consumption demonstration effect.

Theoretically the host government is faced with the clear-cut choice of retaining part of the industry's surplus by profit taxation and thus directly chanelling the revenue into their coffers or, alternatively, by pressing for higher wages. These wages are then subject to personal income taxation and also generate an increase in consumption. In the LDCs trade unions are not as powerful an influence on wage levels as they are in the industrialised countries. Poor organisation, lack of experience, and, particularly, the large number of unemployed weakens the nominally sophisticated bargaining rights frequently accorded to the unions by legislation. Thus the government must take upon itself the advocacy and protection of the workers' rights. To opt for increased wages would probably be an error.

The arguments against a high wage policy have already been outlined in some detail. Government support for this can only serve to strengthen the already deleterious effects of the high wage/low employment policy followed by the MNCs. Furthermore, if wages are relied upon as a means of increasing the host country's share of the return, investment is likely to be less than if the government retained the surplus because a large portion of the wage increase will be devoted to consumption. This stimulus provided to domestic demand is not per se unfavourable and should have the effect of raising national income. However, the possibility of a demonstration effect on expenditure patterns giving rise to a demand for imported consumer goods cannot be ignored. A high import propensity is directly related to a high wage policy insofar as it

stimulates demand for goods of high income elasticity like consumer durables, brandname products and expensive foodstuffs. The import propensity of the expatriates who tend to maintain the expenditure patterns of their home countries will be extremely high, and it is possible that there will be a demonstration effect from the expatriates to the high wage nationals. Thus a high wage policy is not likely to provide a significant stimulus to domestic consumer good industries. Furthermore a large portion of the food requirements of the high wage earners will have to be imported, although, if the necessary resources are available to improve the quality of the domestic agricultural sector's output, in the long run a larger portion of these earnings would be spent locally.

To summarise then, the capital intensive techniques used by the MNC imply a small workforce with a large component of high level manpower. Although capital intensive techniques will reduce the need for unskilled workers and increase semi-skilled component of the workforce, mining industry in particular will continue to rely upon a large component of unskilled labourers. Although this would, on the face of it, appear to ignore the prevailing set of factor prices, on closer examination it is found to constitute a rational response to the conditions prevailing in the LDC's labour market. Furthermore, in the long run, the high wages paid by the MNC probably inhibit the growth of a secondary industrial sector or, at best, encourage the development of a similarly capital intensive industrial sector. A high wage policy will not necessarily stimulate demand for domestically produced consumer goods.

The skill level of the labour force will be raised by the activities of the MNC although there is reason to believe that these added skills will not be disseminated widely.[6]

5.4 Linkages

Following Hirschman (1958), a distinction is drawn between backward and forward linkages. The former refers to the inputs demanded by the MNC's subsidiary and supplied through domestic production, whereas the latter refers to the ability to utilise the output of the industry as inputs in further productive activity in the host economy.

The question to be asked is, "Does the mineral extractive industry remain a small developing enclave within the underdeveloped host country, or does it link up with the national (host) economy so as to stimulate the further development of the LDC's industrial and agricultural sectors?"

Kindleberger (1969) asserts that,

> "The investment linkages Hirschman suggests are stimulating to economic growth ... run abroad rather than to the host economy. With little or limited contact with the local economy, foreign investment occupies an enclave, tightly bound to the home country, far away, but only loosely connected except geographically to the local scene." (p. 188)

Mikesell assures us that the "backward linkage effects of the resource industries are not strong", although the asserts, somewhat unconvincingly that "resource industries

can have important forward linkage effects" (p. 628).

Hans Singer asks if, when attempting to analyse the multiplier effects of foreign investment, "we economists have become slaves to the geographers?" suggesting that "if the proper economic test of investment is the multiplier ... then a good deal of the investment in underdeveloped countries which we used to consider as 'foreign' should in fact be considered as domestic investment on the part of the industrialised countries" (p. 475).

These views are supported by numerous case studies (Baldwin, Girvan and Jefferson, Mikesell, Edozien).

Why do large scale, foreign owned, mineral extractive industries fail to generate these linkages? In attempting to answer this question I will draw on two important contributions to DFI theory, namely, Girvan's distinction between the corporate and the national economy and Murray's (1972) view that "... capitalism, like other economic systems, will have its own laws governing the geographical location of production; that these laws will generate sharp disparities in the type and quantity of productive activity found in the various regions in the system; and that these laws are increasingly applicable to the current distribution of economic activity in the world market" (p. 164).

a) Backward Linkages

Girvan asserts that "it is to the institutional integration of these (resource) industries' multinational corporate system that we should ascribe

their lack of integration within the national economies" (p. 513). Thus, in Girvan's view, it is the mode of organisation of the MNC that reduces the possibility of backward linkages.

Firstly, the tendency towards vertical integration frequently results in the production of some essential inputs by the parent company itself. As Caves has pointed out, where significant economies of scale may be derived at any particular point in the productive process it will be to the firms advantage to supply these inputs from one location, transplanting only the remaining processes to the subsidiary.

Secondly, even when the inputs are not produced within the corporate structure, the observed tendency of the MNC to centralise its purchases in the offices of the parent company drastically reduces the possibility of backward linkages. It will obviously be to the firms advantage to purchase in bulk from a well-established supplier. As Rollins has pointed out, the cost of transporting these inputs from the metropolis to the satellite need not be seen as a significant constraint - the firm will have to arrange for the transport of the subsidiary's output to the metropolis and it may use the same transport facilities to ship inputs to the subsidiary on its inward journey. Furthermore, given that the transfer of inputs may take the form of an intra-firm accounting entry, the corporation is not constrained by a possible shortage of foreign exchange in the host country.

Girvan's analysis does not, however, fully explain why the MNC cannot establish cheap sources of supply in the LDC, or why the local government or entrepreneurs cannot similarly establish the required input producing industries. This point has, to some extent, been touched upon already. The inability of the LDC to generate a capital goods sector supplying the needs of the MNC can be related to the capital-intensive techniques employed by the corporation - a capital intensive resource industry generally presupposes the use of capital intensive inputs.[7] Nevertheless, in order to provide a rigorous analysis explaining the failure of the MNC to generate significant backward linkages, we must look at the factors determining industrial location. I do not intend discussing this question in great detail, but suffice it to say that Murray (1972) has successfully shown that,

> "... the strongest attraction for agglomerative tendencies are agglomerations themselves. There is a continual reinforcement. The existing centres will be terminals for communication, enjoy the benefits of scale economies in servicing, distribution networks, public utilities, and specialised business services. They will have a large market with consequent marketing economies. They will offer a wide range of suppliers and customers ... For any business already located in the centre there will be economies in expanding near existing plant" (p. 171).

Mineral extraction is an obvious example of a locality bound industry - nevertheless the economies of urban agglomeration, improvements in transport and communication, the locality of the final market,

ensure that the proverbial Mohammed will not have to bring his entire entourage to the mountain. It is not suggested that there will be a complete absence of backward linkages, and certain inputs, particularly in the retail and service sectors, are similarly locality bound. However the ancillary industries which cluster around the major export staple are not likely to make a significant contribution to the development of the host economy.[8] The crucial fact is that the major industrial linkages will be generated in the economies of the source countries for it is here that scale economies may be realised, that skilled labour is available and, in general, where the necessary social and physical infrastructure is to be found. The market created by the development of the mining industry might stimulate the production of arable crops in the neighbouring areas. The quality of the fresh foodstuff will usually have to be improved if they are to appeal to the high wage earners, and a reliable marketing network will have to be established. Where the mining companies are actually responsible for providing food to their employees they might be encouraged to undertake arable crop production.

Thus Mikesell's assertion that "... for the primitive economies ... domestic production of equipment required for these (resource) industries must await a higher stage of industrialisation" (p. 428), would appear to be extremely shallow, because the vertically integrated structure of the MNC, coupled with the market determined laws of location are important factors preventing the attainment of this "higher stage of industrialisation".

b) Forward Linkages

The important forward linkages to be derived from mineral extraction generally refer to the refining and processing activities inextricably associated with the mining industry. It appears that very little refining or processing is carried out in the host economy.

It is a well established fact that the mineral extractive corporations almost invariably draw their raw materials from more than one source. Establishing an expensive processing and/or refining plant at every raw material source is clearly irrational, and faced with the choice between establishing the processing and, particularly, refining plant at any one of the raw material sources or in the economy of the parent economy, there is good reason to believe that the MNC will generally opt for the latter.

Firstly, the MNC's initial raw material source is often to be found in the metropolitan country itself - the US copper, bauxite, and oil riches are merely several amongst many examples. The processing activities had thus already been established in the source country, and it is generally cheaper to expand an already existing plant than to establish a new one.

Secondly, the uncertain political structure prevailing in many LDCs suggests that the corporation will reduce its risk by minimising the extent of its activities beyond its national borders. The possibility of losing its mineral resources through

measures undertaken by both the US and Jamaican governments in relation to aluminium production appeared to ensure a low cost bauxite processing operation, but it still proved extremely difficult to encourage the aluminium corporation to establish a processing plant in Jamaica. In this particular instance, it appeared that the costs of the inputs, particularly Caustic Soda, required in the processing stage, determined the firm's choice of location. Caustic soda was far more easily available in the US than in Jamaica. Moreover,if the firm was faced with a shortage of Caustic Soda in the US, the size of the metropolitan market meant that the firm could if necessary establish its own caustic soda plant which would be assured of a large market over and above the requirement of the firm, thus allowing the plant to achieve economies of scale. Furthermore, processing frequently gives rise to valuable by-products, which can be more easily marketed in the metropolis than in the satellite. Thus agglomeration economies definitely reduce the possibility of establishing a local processing plant.

There would thus appear to be little a priori reason for expecting significant forward linkages to be generated in the host economy and once again it would appear, somewhat predictably, that the extent of forward linkages is crucially dependent upon the stage of development of the host economy. But once again the "vicious circle of poverty" rears it head for in the poorer LDCs the link industries generated by the major export staple are a crucial determinant of the economy's ability to attain a higher stage of development.

c) Infrastructural Development

The development of physical infrastructure is not conventionally defined as a link industry. However, a large mineral extractive industry necessitates considerable expenditure on infrastructure - power plants will have to be constructed, a reliable supply of water will have to be secured, transportation facilities will have to be constructed, and housing and other amenities will have to be provided for the MNC's workforce. These infrastructural facilities are thought to provide a considerable stimulus to the LDC's economy.

Contemporary practice dictates that the host government (as opposed to the corporation) bears the financial responsibility for the required infrastructure. Where the LDC draws on its own financial resources a considerable outflow of foreign exchange results. However the funds and technology required for the provision of infrastructure are generally provided for by foreign aid bodies and, although I do not wish to debate the controversial question of foreign aid, it appears that the overall impact of the infrastructure is strongly dependent upon the character and priorities of the loan body.

Ultimately therefore any decision on the impact of infrastructural development will depend, to a significant extent, on the nature of the particular project in question and will be discussed in detail in the following section. In general, however, it would appear that the provision of roads and power should stimulate the development of the host economy.[10] Furthermore, infrastructural development, particularly

the provision of social amenities (housing, etc.), is likely to provide a considerable stimulus to the local construction industry.

5.5 Revenue

The revenue derived from the presence of a large productive unit within the LDC's fiscal jurisdiction is one of the most important considerations prompting these governments to encourage DFI. Although certain reservations are expressed with regard to the foreign investor's revenue contribution no attempt is made to understate its importance. It is, in fact, recognition of the importance of the revenue contribution that compels us to concentrate on these measures whereby the MNC might decrease its contribution to the LDC government coffers.

The revenue accruing to the LDC treasury from the activities of the MNC stems from three major sources, namely, corporate profit taxation, import duties and personal income taxation. Personal income taxation has already been discussed, and this section concentrates on corporate profit taxation and import duties only. Furthermore, revenue is generated not only by the direct activities of the MNC but also by the activities which it indirectly encourages. This is crucially dependent upon the link industries generated by DFI, a question which has also been discussed above.

When discussing the revenue effect the distinction between the corporate and the national economy must be borne in mind. It cannot simply be assumed that the corporation

will realise its objectives by recording its profits in the accounts of any particular subsidiary. It may, for reasons outlined below, attempt to shift its profits from subsidiary x to subsidary y or z, or it may wish to record its profits in the accounts of the parent company. This of course assumes that the firm exercises some degree of control over the location of its profits. The discussion of the channels of profit remission is an important aspect of this section.

Robin Murray (1971, 1972) has provided a useful framework within which the problem may be analysed. Murray draws a distinction between the exercise of monopoly power in economic space and the exercise of monopoly power in territorial space. The former refers to the attempts made by the holder of the monopoly power to "... secure ... the maximum proportion of surplus value produced by the society in which he operates" (p. 219). The exercise of monopoly power in geographical space refers to the firm's ability to transfer its surplus to the geographical area of its choice. In essence the entire dissertation is concerned with both aspects of monopoly power. This is no less true of the present discussion although it does concentrate upon the latter aspect of monopoly power.

Strictly speaking the nation state has the power to control the transmission of profits to areas outside of its fiscal jurisdiction. Furthermore the objectives of the firm will coincide, in certain instances, with those of the host country. The most obvious example of this arises as a result of a tax differential between the source and host countries and, given that the corporate profits tax is generally lower in the less developed than in the industrialised world, it should follow that the firm will

be content to record its profits in the underdeveloped host economy.[11] This argument does not, however, take account of the multiple objectives of the multinational enterprise.

The primary objective of the MNC, like that of any firm, is assumed to be the maximisation of profits, but in the case of the MNC, it is the maximisation of global profits and not those of any particular subsidiary. As Vaitsos (1972 a) and Penrose (1968) have pointed out, it is perfectly feasible that the firm should view the profits of the subsidiary as part of the corporation's cash flow - thus the profits of any particular subsidiary may be used to offset expenditure in one of the firm's other productive units, thus avoiding taxation altogether. This will be particularly important in the situation where the firm's parent company is essentially administrative or where the parent incurs substantial overhead expenditure. Where the profit of the subsidiary may be used to offset expenditure incurred in another geographical area any attempt by the LDC to control the remission of profits will run counter to the global profit maximisation aims of the firm. Vaitsos (1972 a) notes that,

> "Given the ability of a firm to 'expense' certain outlays that are directed towards future returns (such as R&D) ... (and) ... if these expenses, together with the direct costs for the operation of a given firm (assume that it is the parent), exceed the revenue from sales in its home market and to non-affiliates abroad, then it will be to the overall advantage of the trans-national enterprise to transfer untaxed income from its foreign affiliates through transfer pricing to cover these costs. In this way it reduces its global tax payments by reducing taxable income elsewhere through appropriate adjustments." (p. 34)

I have already indicated that because of agglomeration economies and the vertically integrated structure of the firm, it will prefer to incur its overhead expenditure - R&D, global administration, marketing, legal costs, etc. - in the economy of the parent. Moreover, particularly in the case of the large mineral extractors, the major profit points are frequently situated outside the source country.[12] Thus, for this reason alone, there is considerable incentive for the firm to remit profits from the subsidiary to the parent.[13]

Formally the firm remits its profits by means of dividend payments and/or the payment of interest on loans advanced by the parent to the subsidiary. Given that interest payment are frequently considered as an expense it will usually be to the firms benefit to remit its profits in this manner, effectively providing the firm with an incentive to rely on loan rather than equity capital as a source of finance for its subsidiary. There are, however, other, somewhat more surreptitious, channels of profit remission which the firm may utilise, for example, pricing of the inputs and output of the subsidiary, and the royalty payment on the technology transferred. These channels of profit remission are collectively referred to as "transfer pricing" which, in effect, permits the firm to understate the profits earned by the subsidiary, simultaneously overstating the profits earned by the parent company.

There are many varied reasons why the firm would prefer to use transfer pricing rather than dividend or interest payment as a means of profit repatriation. Firstly, the firms public image would suffer if it was seen to be remitting a substantial portion of its profits to a

foreign shareholder. More important, however, are the restrictions which the host government frequently places on profit remission by way of dividends and when the host government attempts to seal off the conventional channels of remission, the firm will resort to transfer pricing as a means of profit repatriation.[14]

Where the parent acts as the central purchasing agent for the MNC it may remit profits from the subsidiary to the parent by selling machinery or other essential inputs to the subsidiary at inflated prices. Research undertaken in Colombia revealed that the inputs purchased by Colombian subsidiaries in the pharmaceutical industry from their US parent were overpriced by 155 per cent, in the rubber industry by 40 per cent, and the chemical industry by 25,5 per cent (Vaitsos, 1970 a). Similar studies undertaken in other Latin American countries support these findings. Similarly, underpricing of the output of the subsidiary may also be used as a vehicle for the remission of profits - the activities of the aluminium MNCs in the Caribbean are outstanding examples (Reno).

It is extremely difficult to close these channels, and the LDC government must ensure that all channels are sealed off. Closing one will merely result in intensive use of one of the other channels. Note however that certain factors restrict the use of transfer pricing. Fees and royalty payments, for example, must be related in some way to technology used by the subsidiary. Furthermore, the attitudes of divisional managers must be considered, insofar as the low profits in any particular division cast aspersion upon the ability of the responsible manager. The problem may be overcome by using more than one set of books (see Shulman).

It would thus appear that stated profit figures are generally unreliable indicators of the subsidiary's performance. Nevertheless, the corporate profit tax based, of course, upon the stated profits, constitutes an important portion of the revenue accruing to the host economy, and it is to a brief examination of alternative taxation policies that I now turn.

The objectives which the host country hopes to realise through taxation of the MNC's subsidiary depend, to a large extent, upon the role and importance of the industry in each particular LDC. The present analysis is concerned with the case where the industry accounts for the great bulk of the country's export earnings and is its major growth determinant. Within this framework, maximisation of the host government share of the value of the industry's output is identified as the primary objective of taxation policy. Other objectives cannot, however, be ignored, particularly where the attainment of the primary objective conflicts with the attainment of any subsidiary objectives. Subsidiary objectives might include maximisation of the backward and forward linkage effects, tax measures designed to influence the rate of mineral extraction and the geographical pattern of development, and a host of political objectives, all of which may presuppose a taxation policy inconsistent with the attainment of the primary objective.[15]

Most important, however, the government must ensure that, in attempting to maximise its share of the value of the subsidiary's output, it does not decrease its share of the global industry's output. The relationship between the host and the MNC is highly asymetrical, for, whereas the LDC is often wholly dependent upon the acitivities

of the MNC, the MNC has alternative sources of raw materials which it may draw on. This re-emphasises the need for a bargaining model of DFI. The inequitable deployment of bargaining strength arising from the asymetrical nature of dependence is an important factor prompting the LDC to grant significant concessions (e.g. differential tax rates, depletion allowances, etc.) to the MNC. These concessions naturally conflict with an attempt to maximise the government's share of the subsidiary's profits but are necessary to secure the LDC's share of global output.

As noted above the subsidiary's profit is commonly used as the tax base, frequently supplemented by a tax on dividends remitted and an "excess" profits tax. Where a corporate profit tax is relied upon the price of the subsidiary's output is of crucial importance. The MNC may attempt to hold down the price of its output thus reducing its tax commitment. The LDC may be able to prevent this by establishing posted prices in terms of which the subsidiary's tax burden will be assessed. Alternatively the government may compel the MNC to sell its output at stipulated prices.

Alternatively the LDC may decide to use the volume of output as the tax base. In recognition of the difficulties involved in determining the subsidary's profit, several of the bauxite rich LDCs have attempted to levy taxation according to the quantity of bauxite produced in each tax year. Given the highly volatile price structure characteristic of the mining industry a tax of this nature is ill advised as it will preclude the LDC from benefiting from the high profit periods of the MNC, and will also encourage the MNC to opt for high prices at a

low level of production (see Reno). Where, however, the corporate income tax acts as a discincentive to increased output, the LDC is well advised to reduce the level of taxation once a stipulated volume of production is achieved.

The duty levied on the imported inputs required by the MNC is another important source of revenue for the LDC. This will be particularly important in the early, construction stage of the corporations activities and will decline markedly after the first few years of production - the planners should thus not view it as a continuing source of revenue. Any attempt by the MNC to remit profits by means of overpriced inputs will lead to an increase in import duty charges. This factor might explain Vaitsos' conclusions that bargaining over tariffs is generally viewed by the MNC as being of greater importance than most of the other items on the bargaining agenda. A low tariff structure is also an important concession frequently granted by the LDC to the MNC and constitutes an important source of competition between LDC's vying for foreign investment.

I do not suggest that the above discussion constitutes an exhaustive analysis of the important question of revenue and taxation. It has attempted merely to outline the two crucial problems in this sphere, namely, the asymetrical nature of the dependence which exists between the MNC and the LDC, and, secondly, the corporation's ability to determine the geographical location of its profits and, so, the size of its tax base. The former is broadly similar to Murray's exercise of monopoly power in economic space insofar as it places a definite limit on the LDC's ability to extract surplus from the MNC by

tipping the bargaining powers in favour of the latter; the second refers to the exercise of monopoly power in geographic space.

5.6 Summary and Conclusions

The above analysis underlines the importance of the investor's contribution to government revenue. The importance of this contribution becomes particularly apparent when seen in relation to the weak linkage and multiplier effects of DFI. The revenue contribution is also accentuated by the high import propensity of the MNC's workforce which suggests that the government planners would be well advised to extract their share of the surplus in the form of corporate taxation rather than by encouraging higher wages. The wage structure of the MNC is, in part, attributable to the capital intensive techniques favoured by the MNC and also to the structure and characteristics of the LDC's labour force. The use of capital intensive techniques perpetuates the structural deficiencies of the LDC's labour market and encourages further use of similar techniques. Furthermore, the high wages paid by the MNC will probably result in an overall increase in the national wage level, and, as such, will retard the development of a domestically controlled industrial sector.

In essence, most of the mineral exporting LDCs are heavily dependent on the revenue earned from the taxation of the MNC's profit. Recognition of this situation leads Girvan to several highly pessimistic conclusions, and he argues that the LDC will become structurally dependent upon the revenue and foreign exchange provided by the activities of the MNC. He notes that,

> "... the mineral export industry does not expand indefinitely: the very factors which make it important to the national economy - the high rate of growth of output and the growth of the tax take - are those that make it necessary for the company or companies to shift the location of new capacity elsewhere ... This puts pressure on the most important propulsive mechanism of the system - the growth of public spending - and the most important permissive mechanism - the growth of imports. Hence the political economy will either have to contain these mechanisms, or to find ways and means of allowing them continued operation" (p. 523/524).

Thus Girvan suggests that in a foreign controlled, mineral extractive economy the responsibility for future development is completely shouldered by the planners (as opposed to the investment multiplier) whose activities are determined by the revenue and foreign exchange contributions of the MNC. The weakness of the investment multiplier is directly related to the structure of the MNC and the market determined laws of location, implying, as they do, the use of capital intensive techniques of production. But the LDC is largely dependent upon the resources offered by the MNC, and any attempt on the part of the host country government to increase radically its revenue share will hasten the demise of the multinational's subsidiary.

NOTES TO CHAPTER 5

1 Cf. chapter 11.

2 An example of the misleading use to which these criteria may be put is provided in chapter 6.

3 This appears to have been true of the companies operating on the Zambian copperbelt (see Baldwin).

4 This raises an extremely important question which I shall not detail at this stage. La Clau in fact argues that the capitalist class benefits from the maintenance of two contradictory modes of production, namely, the capitalist and pre-capitalist modes. From La Clau's Marxist perspective the situation cannot be maintained indefinitely and the contradiction will be resolved by the rise of the predominant (capitalist) mode. For an excellent application of this argument to Southern Africa see Wolpe.

5 Streeten notes: "The foreign firms pride themselves on the high labour standards which they introduce into less developed countries, the high wages they pay, the short hours the workers work and the generous welfare services they provide. In fact, all these are detractions from, not contributions to, the development effort. It is precisely in the area where host government and foreign firms seem to pursue common interests, when the profit motive and national aspirations seem to coincide, that most damage is done ..." (p. 244).

6 Although even if the unskilled workers are not provided with any specific skills they are familiarised with an industrial milieu which, in itself, will increase the skill level of the workforce.

7 For a detailed discussion of the problems faced by the LDC in establishing a capital goods producing sector, see Arrighi, Baldwin, Murray (1972).

8 Murray)1972) cites studies by Christaller, Borgue and Alexandersson in support of this statement. Christaller shows that even the service sector requires a minimum size "catchment area" (using population as a measure) which suggests that even this sector is likely to consist of small scale

services which will not employ a great number of locals or significantly contribute to national income. Alexandersson distinguishes between "ubiquitous" and "sporadic" industries, the former being found in most urban areas and comprising 20 service and three manufacturing industries (construction, printing and publishing, food processing).

9 In Zambia both Anglo American and RST were extremely reluctant to establish a local refining plant, largely because of the high tariff barriers in the developed countries but also because a processing plant in Zambia would have competed with established European fabricators, some of whom were major customers of the abovementioned corporations. The imminent possibility of one of their rivals establishing a Zambian processing plant eventually encouraged Anglo and RST to integrate forwards. - The Economist (London), 22nd April, 1967.

10 Although as Baran persuasively notes:

> "... it is not railways, road and power stations that give rise to industrial capitalism: It is the emergence of industrial capitalism that leads to the building of railways, the construction of roads and to the establishment of power stations. The identical sources of external economies if appearing in a country going through the mercantile phase of capitalism, will provide, if anything, external economies to merchant capital" (p. 193).

11 The existence, or otherwise, of an agreement between the source and host countries preventing double taxation might be an important consideration. For present purposes it is assumed that such an agreement is in force.

12 Lonrho is a case in point, with 96 per cent of its profits earned abroad - Chairman's Statement, reprinted in the Cape Times, 4th January, 1974.

13 Tax differentials do sometimes provide an incentive for remission from the subsidiary. Anglo's interests in Zambia are an example, with Zamanglo incorporated in a "tax haven", Bermuda. Note too, that although tax considerations often appear to be of paramount importance when decisions regarding profit remission are made, there are other factors that must considered,

e.g. currency fluctuations, the stability of the host government, the rate of inflation in the host economy, etc. For a detailed discussion of these factors, see Shulman.

14 For a formal analysis of transfer pricing see Horst. Horst's analysis is unconvincing insofar as he only considers the height of the tariff charged on inputs as a determinant of transfer pricing. There are, of course, other objectives which the firm will wish to realise and it might continue to utilise transfer pricing despite high tariff walls.

15 For a more detailed discussion of these subsidiary objectives see Behrman.

CHAPTER 6

The Value Retained

It is, of course, impossible, at this stage, to ascribe any approximate magnitudes to the items in the value added table. It is assumed that the mining venture is one of significant size, and it therefore follows that gross output will be considerable, if not in relation to the industry's global output, then at least in relation to the total value of the host country's industrial output. The absolute amount of profit earned is also assumed to be considerable, particularly when compared with the profit earned by existing local enterprise, and tax receipts earned by the government from the foreign owned enterprise will also be considerable. A large scale, capital intensive, mineral extractive enterprise will require costly material inputs, although much of this expenditure will be incurred abroad. The number of workers employed will be small in relation to the quantity of capital employed but, given the small number of workers in cash employment in the host country, the wage bill of the MNC will constitute a significant portion of the national wage bill.

Although the question of the value retained is implicit in the above analysis it is necessary to focus directly upon this important issue. Raymond Mikesell and many of the contributors to his volume (see particularly Mamalakis) purport to measure the impact of DFI entirely in terms of the project's

foreign exchange contribution, that is, by comparing the value of exports with total foreign exchange receipts in the form of the MNC's domestic expenditure plus its payments to the government, Mikesell et al are able to calculate the ratio of foreign exchange earnings to export values and thus assess the "impact" of the enterprise on the host country. Although there are several problems associated with Mikesell's particular formulation,[1] there are several fundamental questions which must be posed concerning the calculation of foreign exchange receipts:

Firstly, many Latin American writers assert that, over a stated period of time, the flow of capital on investment account from the metropolis (read, USA) to the satellite (read, Latin American sub-continent) is dwarfed in sheer magnitude by the reverse flow, that is, by the flow of profits from the satellite to the metropolis. The satellite is thus a net loser of foreign exchange and, on this basis, the MNC, as the prime mover of capital between nations is viewed as "exploitative" and an "agent of neo-imperialism" (see particularly Frank, Magdoff). This argument is based upon an extremely superficial analysis that warrants considerable re-examination.

Essentially the above argument implies that the only balance of payment impact of DFI arises from the inflow of capital and the remission of profits. This is, of course, incorrect. If the foreign capital is invested in import substituting industries the quantity imported declines, and if it is invested in export industries the volume of exports increases, the foreign exchange position being affected in both cases. In fact, using data of the early 'sixties for US manufacturing subsidiaries,

Vernon (1971) shows that satellite countries are only small net losers of foreign exchange, the annual loss increasing slightly over the life of the subsidiary.[2] Furthermore, insofar as Frank's analysis suggests that new investment can be compared with dividends and interest remitted, it might be argued that, on the assumption that each new capital inflow is used productively, each debt should generate a sufficient increase in productivity to service itself.[3] Finally the balance of payments is a macro-economic concept and should be dealt with by macro-economic tools, thus any argument which suggests a restriction of DFI by reference to the balance of payments is a second-best argument (Johnson). However, the imperfect nature of the LDC's economy will justify the use of second-best policy (Kindleberger).

Secondly, and of more fundamental importance, when attempting to measure the impact of DFI in terms of the enterprise's contribution to foreign exchange, it must be assumed that, a) either these foreign exchange earnings finance inputs required by the LDC that are only obtainable from abroad thus relaxing a foreign exchange constraint. That is, as Areskoug puts it, it must be assumed that "... the policy makers attempt to create an incremental trade (goods and services) deficit, above and beyond any such deficit expected to be financed through private capital inflows or reserve reduction, of a magnitude equal to the official capital inflow in that year" (p. 183)[4] or, b) that the inflow of foreign exchange has a positive impact on the level of domestic savings, that is, that a savings constraint is relaxed.

Although I do not intend debating this highly complex subject in any detail, it appears that there are strong

theoretical and empirical grounds for questioning these assumptions. Acceptance of these assumptions implies that government policy measures will always be able to ensure that the additional foreign exchange is directed into investment with no consumption linkages.

An econometric study undertaken by Weisskopf shows quite conclusively that savings generated by inflows of foreign capital do not necessarily supplement domestic savings and, in fact, indicates that there is an inverse relationship between foreign capital inflows and ex ante savings.

Areskoug asserts that when the effect of the foreign capital inflow on the domestic financial variables is considered (as opposed to those models which only take account of the effect on the real variables) the question of the government policy response to the foreign capital inflow must be considered.
The government may respond to the inflow by using expenditure increasing policies (i.e. increasing the level of government expenditure) or expenditure switching policies. If the government chooses to use expenditure increasing policies it will induce a situation of inflationary excess demand unless it is able simultaneously to depress the level of private spending. Econometric research undertaken by Areskoug revealed that those governments that relied on expenditure increasing policies diverted a large portion of the incremental foreign exchange into consumption expenditure giving rise to the expected pressure on the domestic price level.

Admittedly these arguments are extremely inconclusive and deserve more detailed treatment. They do however cast doubt upon those models which glibly assume that an inflow of foreign capital automatically relaxes a foreign exchange and/or a savings constraint.

Bearing these qualifications in mind, it will be useful to examine each element in the value added table outlined in chapter 5, and attempt to estimate the portion of value added which is likely to be retained in the host country, or, in Killick's terminology, the mean foreign exchange content of the value added. The following will comprise little more than a brief summary of selected aspects of the contents of chapter 5.

Material Inputs: In the value added table material inputs are disaggregated into imported and locally produced inputs. Obviously the foreign exchange requirement of the former will be 100 per cent, whereas purchases of locally produced inputs will not require any foreign exchange. The real problem, of course, is to estimate what portion of the material inputs will be imported.

For reasons outlined above it appears that the lion's share of the material inputs will be imported. Capital intensive techniques of production will require similarly capital intensive inputs; the integrated structure of the MNC suggests that many of the important inputs will be produced within the firm itself; in general, the market determined laws of location ensure that most of the important inputs will be produced in the advanced, industrialised economies and will thus have to be imported by the subsidiary. In essence, backward

linkage effects of DFI are weak and, therefore, most of the material inputs required will be imported. Some of the required inputs may be produced locally - construction inputs like bricks, nails, possibly protective clothing for the miners, but the costly inputs, the machinery, steel, etc. will have to be imported.

Wage and Salary Payments: In order to calculate the foreign exchange required as a result of the wage and salary payments, the import propensity of the MNC's labour force must be estimated.

The import propensity of the highly paid workers will be considerably greater than that of the low paid workers, and the fact that the former are generally expatriate raises their propensity to import. The expatriate employee will attempt to maintain the mode of living of his home country and a demonstration effect is likely to filter down from the expatriate workers to the highly paid nationals. Furthermore, with the exception of fresh foodstuffs, the locally produced consumer goods demanded by the highly paid will be luxury goods and their production will embody a high import content. The import propensity of the low income unskilled and semi-skilled employees will be considerably lower than that of their high income colleagues, although the existence of a demonstration effect cannot be discounted. Furthermore in an isolated mining town the retail outlets will cater to the needs of the high income earners, bolstering this demonstration effect.

It would thus appear that the foreign exchange content of the MNC's wage bill is likely to be significant. The

larger the portion of the wage bill attributable to expatriates, the greater will be the foreign exchange content.

Profits: There is not very much that one can say about the foreign exchange content of the subsidiary's profits. Profits are remitted to shareholders and the location of the shareholders determines the foreign exchange content of the profits. In the case of a wholly owned foreign subsidiary the amount of profit will reflect the foreign exchange requirement. Where the host government or local citizens share in the ownership of the subsidiary the foreign exchange content will obviously be smaller.

Government Revenue: It is virtually impossible to make a general estimate of the government sector's propensity to import. In a LDC where the government will be engaged in providing much of the basic social and physical infrastructure, the foreign exchange requirement is likely to be significant, although lower than that of the other categories mentioned. The provision of social infrastructure - schools, hospitals, local government - is not likely to embody a high foreign exchange content. The provision of physical infrastructure, particularly insofar as it involves the purchase of sophisticated equipment (e.g. power stations) is likely to involve a high foreign exchange element, although the funds for costly projects of this nature will not usually be drawn from recurrent government revenue. Control of a large mineral extractive industry generally presupposes the creation of a government department staffed by trained, skilled administrators, technicians and economists. In this sense

then the revenue from the mining sector might contain a significant foreign exchange content.

In general, it would appear that the impact of the foreign owned sector cannot be measured in terms of the enterprise's value added. The value added will diverge from the value retained, the latter measure constituting a more meaningful indicator of the corporation's impact.

How, for example, is the price and/or quantity of S arrived at, and does D constitute the bulk of remissions abroad?

c) From whom and at what price is M imported? Is it not conceivable that the nature of DFI allows the investor to impose a similar oligopolistic structure on the market for inputs?

2 However, Vernon's analysis is based explicitly on the dubious assumption that the stated profit figures reflect the true remission.

3 It would however appear that this argument is only necessarily valid in a situation of competitive markets. That is where the foreign investment is encouraged by or gives rise to an oligopolistic market structure or the existence of a tariff, further investment could in fact lead to "immiserising growth". Thus the argument is only necessarily valid when it is assumed that the investor is only able to extract a certain portion of the productivity increase, and is therefore only tenable in a second-best sense.

4 Areskoug's article is concerned with the effect of official foreign aid inflows. In the passage cited, "official" and "private" may be transposed without disturbing the analysis.

CHAPTER 7

DFI and the Distribution of Income

7.1 Introduction

Many of the issues raised in this chapter have been referred to in previous chapters but whereas the analysis thus far has concentrated on the question of value added and retained this chapter will focus attention upon the distributional criteria.

This chapter also concentrates on the problem of what Kindleberger refers to as "disaggregated interest groups", a problem which is inextricably bound up with the question of distribution. That is the distribution of income and the distribution of access to income generating opportunities gives rise to the existence of various socio-economic groups with divergent interests. This has important implications for the nature and effectiveness of government policy, and to the magnitude and direction of economic development.

7.2 The Distribution of Income

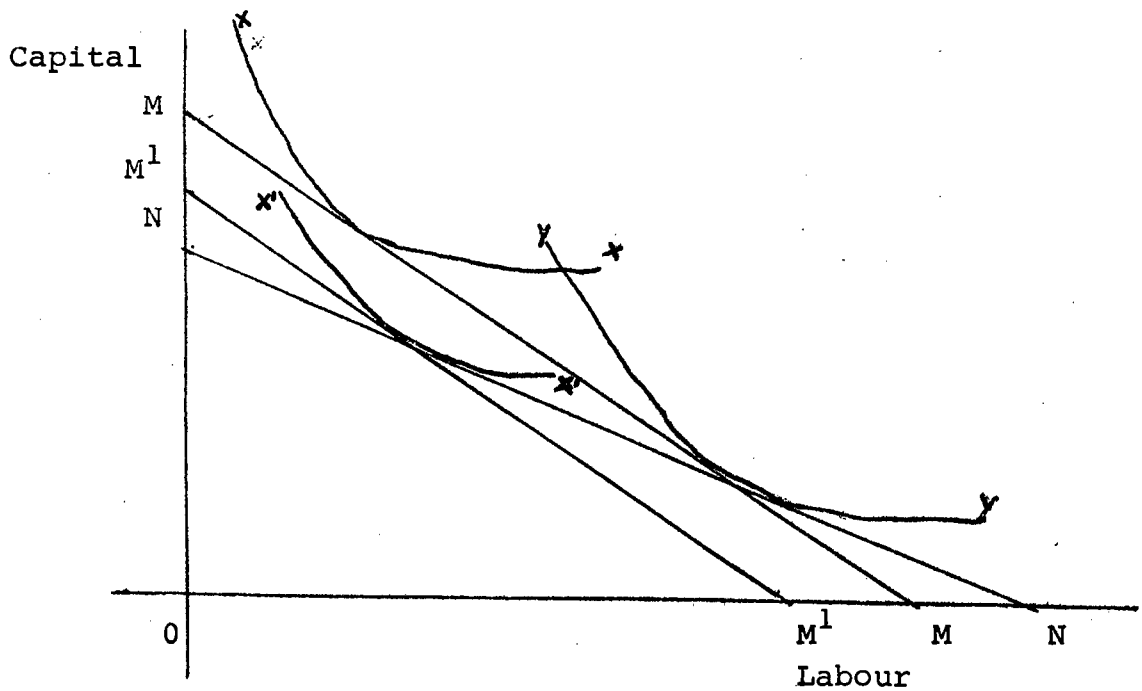
If, as Vaitsos (1972 a) has pointed out, the MNC is able to extract the entire rental and all the additional income accruing from its investment, there will be no direct intracountry distributional effects as long as prices are unaffected and full employment prevails.

If the increase in productivity (income) generated by

the influx of foreign factors is reflected in lower prices to the consumer (as opposed to premium prices for the foreign factors) the distributional effects will be determined by the consumption package of the host country consumers. In the case of mineral extraction, particularly where the ore is unprocessed, a price reduction is not likely to affect distribution in the host country.

If, on the other hand, under the reasonable assumption that foreign investment flows into the relatively capital intensive sector of the host economy, and if the returns and rental accruing from the investment reflect itself in a change in the general level of factor prices (as opposed, that is, to a premium on the factors specifically employed by the MNC) distribution could move both relatively and absolutely in favour of capital and against labour.

The above analysis is outlined in the following diagram (reproduced from Johnson, p. 46).



Prior to the investment there are two sectors employing differing capital-labour ratios, x and y. Foreign factors flow into sector x. If the entire rental accrues to the investor prices will remain unchanged and the investor earns a profit on his technological superiority (illustrated by the difference in efficiency between x and x^1) at the rate of MM^1/oM^1. Where the increased efficiency is reflected in a product price reduction the price of x falls by MM^1 in terms of capital with no effect on factor prices. If, on the other hand, the product price level prior to the introduction of the foreign capital is maintained, and the increased efficiency is reflected in a change in overall factor prices, the new price ratio is reflected by MM, an absolute and relative decline in the price of labour.

Thus, given that an increase in efficiency does not manifest itself in a reduction in product prices, it appears that the foreign investor's influence in determining distribution will be exercised through a change in factor prices. Furthermore the analysis shows that the distribution will move in favour of capital and against labour.

The capital employed by the MNC stems, it has been assumed, from the advanced metropolis. In the case of joint ventures, that is, where a portion of the capital is raised in the host country, the increased price of capital will benefit the local owners of capital - the government sector or individual capitalists. A certain portion of the working class also benefits from the introduction of foreign capital, most noticeably those directly employed by the MNC.

The question of distribution is analysed more fruitfully within an "interest group" or "class" framework. In essence it is hypothesised that large-scale DFI encourages the emergence of divergent interest groups, and possibly exacerbates tensions existing between established socio-economic groups. In Streeten's words:

> "... the nation state is not monolithic. Different interests within it align themselves differently with the foreign owned firm. Among those who will side with it are bribed officials, the small employed aristocracy of workers who enjoy high wages and security, the satellite bourgeoisie to whom world wide mobility and prospects are opened, and the domestic industries producing complementary goods who benefit from the concessions which the MNC has achieved for itself. On the other side of the fence are the masses of unemployed, non-employed and under-employed, those who suffer from the higher costs, the competitors, actual and potential, and those who dislike foreigners. In view of the division, it is misleading to speak of the interest of the nation state" (p. 257).

7.3 Disaggregated Interest Groups

The formation of these interest groups has already been analysed in some detail.

The capital intensive techniques employed by the MNC, the attempts to stabilise its workforce, give rise to a small, relatively highly paid workforce. We have seen that a clear tri-partite division is discernible within the MNC's workforce: the highly paid technical and managerial personell, frequently referred to as the "elite"; a "sub-elite" (accounting, clerical, secretarial, artisan staff) whose wage level is determined by a combination of MNC

priorities and the civil service wage structure; and the proletarianised, semi-skilled and unskilled workforce. The latter are often incorporated in an amorphous group referred to as the "labour aristocracy". This term, although in common usage, will not be employed. Although the unskilled and semi-skilled workers might find themselves in a privileged position vis-à-vis the unemployed urban dwellers and the peasantry, it is probably misleading to refer to them as an "aristocracy".

Furthermore, the MNC stimulates the formation of a small services sector and a class of small retailers. The livelihood of these establishments is likely to be strongly dependent upon the demand generated by the corporation and their employees. The lack of integration between the MNC and the remainder of the host economy places the burden of development, not on the investment multiplier, but on the LDC planners which necessitates the formation of a bulky, sophisticated, civil service. The combined effect of the colonial civil service structure and the MNC's wage policy sets the high wage level prevailing in the civil service, the maintenance of which is strongly dependent upon the revenue derived from the MNC.

It is extremely difficult to represent the emergence and position of these interest groups within a single framework. It appears, however, that three broad groups have been identified. Firstly, the corporation's workforce, composed, as it is, of a highly paid elite, a sub-elite, and a semi-proletarianised force of unskilled and semi-skilled workers; secondly, the retailers and service sector, including the civil service, whose position is

strongly dependent upon the presence of the MNC; and finally, the government in power, the bulk of whose revenue is so strongly tied to the existence of the MNC.

But what of the other side of the fence? The small commercial farming sector is strongly dependent upon the demand generated by the growth of the modern sector, but, as outlined above, there is every likelihood that the high wages paid by the mining company might reduce the magnitude of this demand. Furthermore, insofar as the MNC's wage level sets the national wage level, employment in the modern sector might be reduced in the long run, and those who remain unemployed or who are laid off as a result of the capital intensive bias generated by a wage increase, will be forced to fall back on the rural sector.

It would thus appear that the MNC encourages the formation of a national elite, varying in wealth and influence, from the managerial staff of the MNC to the unskilled miner, from the ruling political power to the small retailer established in the mining town. The nature and strength of their ties vary considerably but, in the broadest sense possible, it does appear that their interests are furthered by the presence of the MNC.

I must at this stage digress slightly and examine the superficially powerful argument which suggests that the creation of a national elite is an important, indeed necessary, factor stimulating further development. This argument turns on the size of the "re-investment coefficient", that is, it is postulated that, whatever the short run effects, capital intensive techniques, in the long run, release a greater supply of investment

funds. This argument has been used by Dobb, Sen, and Galenson and Leibenstein - these writers all assume the existence of a centrally planned economy where the reinvestment of the surplus and the prevailing wage level are closely determined by the planner.

Essentially the same argument is used to justify the creation of a highly paid national elite. That is, it is argued that the highly paid elite will save a greater portion of their earnings thus releasing a greater supply of investment funds. Furthermore, it is argued, domestic demand will be stimulated by the greater spending power of the small high income group.

As far as the predominantly expatriate elite is concerned (as opposed to the sub-elite and proletariat), it appears that a substantial portion of their earnings is banked in the source country or is earned in the form of a bonus paid on the expiry of their contract. Furthermore, it is by no means certain that the portion of the earnings of the elite and sub-elite that is saved, will be reinvested in the host country. In fact, the nature of the commercial banking sector in most LDCs reduces the possibility of substantial reinvestment. Where the banking sector is dominated by foreign owned banks and where the LDC is not able to control the outflow of funds, a large portion of the savings of the LDC will be reinvested in the metropolis.

Furthermore, as noted above, the stimulus to local production of consumer goods is reduced by the high income elasticity of demand of the highly paid elite, and possibly by a demonstration effect on the expenditure patterns of the sub-elites and workers. The creation of an elite will not necessarily generate demand for locally

produced consumer goods - for imported consumer goods, certainly, but not necessarily for locally produced commodities.

It would thus appear that the creation of a national elite does not necessarily offer the investment benefits frequently referred to. But does it actually reduce the policy options available to the satellite government?

At the one extreme, insofar as the government itself is part of the elite created and maintained by the MNC, the possibility of a convergence of interest between the MNC and the government could drastically reduce the welfare of the LDC citizens. Meillassoux, noting the high portion of Middle Eastern government revenue spent on internal security, coupled with the high proportion of government revenue derived from the petroleum industry, concludes that there is an important link between DFI and the maintenance of the internal political structure (cited Murray, 1972).

But, discounting for the moment the possibility of a government-MNC alliance, any conflict between the government and the MNC may manifest itself as a conflict between the government on the one hand, and the urban workforce and local capitalists on the other. For example, any attempt by the government to increase its share of the MNC's surplus might reduce the share of the working class, and thus a conflict between the government and the MNC concerning the distribution of the returns on the investment, might appear as a conflict between the government and the proletariat. In fact, the distribution of income encouraged by the MNC might prevent successful implementation of a government policy measure designed to

redistribute income from the urban to the rural areas, insofar as measures of this nature imply that the small, but politically powerful, elites would have to bear the brunt of the redistribution.[1] It is interesting to note that Nicholas Kaldor, drawing on his wide experience as a tax consultant to many LDC government, writes that,

> "... since I invariably urged the adoption of reforms which put more of the burden of taxation on the privileged minority of the well-to-do, and not only on the broad masses of the population, it earned me (and the governments I advised) a lot of unpopularity, without, I fear, always succeeding in making the property owning classes contribute substantial amounts to the public purse.
>
> The main reason for this ... undoubtedly lay in the fact that the power, behind the scenes, of the wealthy property-owning classes and business interests proved to be very much greater than the responsible, political functionaries suspected" (p. XVIII).

Kaldor also found that in two countries that accepted his proposals, British Guiana and Ghana, attempted reform of the tax system was met by considerable opposition from the trade unions, who, he found, objected to the introduction of greater equity in taxation, although none of the proposals would have directly affected the wage earning classes. "In underdeveloped countries", concludes Kaldor, "the moneyed interest is capable of exerting its influence in strange and unexpected ways: if not through the Cabinet, or through Parliament, or through the revenue administration, then, in the last resort, through organised labour" (p. XX).

It is, of course, very difficult to arrive at any unequivocal conclusions regarding the possibility of a convergence of interests between divergent national groups and the MNC. The possible conflicts which have been identified may arise from any large scale industrial development, domestic or foreign controlled. However, in the case of a foreign investor the conflict is exacerbated by the very element of "foreigness", that is, by the fear that a share of the control of the LDC's economy has been surrendered to foreign owned interests, and that certain national groups will ally themselves with the needs of the foreigner at the expense of the perceived interest of other groups in the society.

NOTE TO CHAPTER 7

1 The opposition of the Chilean copper miners to Allende's socialist programme is cited as an example of an alliance between the labour elites and the foreign owned MNC.

CHAPTER 8

Summary and Conclusions

The theoretical framework used in this paper stresses what appear to be the two crucial characteristics of DFI, namely

1) the structure of the MNC and its tendency to maximise profits from a global perspective, and
2) the technological dependence of the LDCs on the developed, industrialised West.

Furthermore, it appears that the process of global profit maximisation coupled with the overriding market determined laws of location perpetuates the situation of technological dependence.

The primary implication of this is that the LDC finds itself in a situation from which it cannot easily emerge - it may grow, but the growth is achieved without development. The rapid growth in the GDP of many LDCs, burgeoning government revenue, and the emergence of a small, but prosperous, high income group within the satellite are sound indicators of a growing economy but they do not necessarily imply development, because the fundamental situation of dependence is not alleviated. In Dos Santos' words,

> "The relation of interdependence between two or more economies, and between these and

> world trade, assumes the form of dependence when some countries (the dominant ones) can expand and can be self-sustaining, while other countries (the dependent ones) can do this only as a reflection of that expansion..." (p. 231).

The process of DFI reinforces the condition of dependence - a large portion of the surplus realised by the foreign investor is remitted abroad thus reinforcing the geographical concentration of capital required for large scale industrialisation; the linkage effects are realised, for the large part, in the metropolis; the LDC does not acquire the means to develop its own R&D capabilities and it remains technologically dependent on the advanced economies. DFI obviously fulfils certain sorely lacking needs in the host economy - it does, to some extent, disseminate industrial skills and knowledge; it makes a significant contribution to the government coffers; and it does provide employment for a small number of LDC nationals. In effect, if DFI is assessed purely in terms of value added and even value retained criteria its contribution is significant. Thus we are faced with a seemingly insoluble contradiction - it appears that if any LDC wishes to industrialise it will have to tie itself to the international economy, it cannot industrialise in isolation. On the other hand, the process of DFI, the process by which the LDC integrates itself with the international economy, reinforces the condition of dependence, it reinforces the tendency towards the geographical centralisation of the means of production. The foreign owned industry remains a small developing enclave and the important linkage and spillover effects are realised in the metropolitan economies.

As Baldwin points out, in an economy characterised by an efficient allocation of resources the pecuniary externalities generated by DFI will not be important, that is, changes in market demand and supply merely result in a reorganisation of given factors. Technological spillovers, on the other hand, may be of importance, even under conditions of efficient resource allocation.[1] However, in an economy where resources are not allocated efficiently (e.g. a less developed economy) both technological and pecuniary externalities should be of significance. The importance of technological spillovers has already been recognised - the additional skills acquired by the corporation's employees, the infrastructural facilities such as power and transport, may all be utilised in the wider economy. But whether or not these technological spillovers make a significant contribution to economic development will depend, to a large degree, upon the extent of the pecuniary externalities. Thus Baldwin's analysis of the Zambian economy concludes that,

> "Unlike economies in which resources are fully employed and efficiently allocated, changes in demand conditions, that is, pecuniary spillovers, in underdeveloped areas do affect the quantitative and qualitative features of the basic means of production ...
>
> ... Demand repercussions, in other words, cause not just a shift in resource allocation but lead to an increase in the productive powers of existing resources. Unfortunately, the nature of the production function for copper was such that the direct and indirect demand effects derived from the industry were not very large." (p. 215)

Thus when comparing the overall impact of plantation economies with mineral extraction, Baldwin concludes, that,

> "In terms of facilitating the training of skilled labour, the mineral industries are in a more favourable position than are the agricultural producers of export commodities working under a plantation system. But the low level of domestic demand generated by mineral industries tends to confine the demand for skilled labour to the mineral export industry itself. A small part of the population gains considerably from the creation of the mineral export industry, but development fails to affect the rest of the economy to any significant extent." (p. 73)

There are, of course, policy measures available to the LDC whereby it might raise its share of the return from the investment. Although these alternative policy measures have not been analysed it is probably generally correct to assert that the MNC is not as tax elastic as one might suppose, and the host government may impose a harsher or more sophisticated system of taxation on the foreign investor without significantly reducing the inflow of foreign capital; the LDC government may, within limits, compel the MNC to adopt a wage-employment policy more suited to the host's needs than would normally be followed by the MNC; it may, to a limited degree, compel the MNC to purchase some of its requirements in the LDC or, in very exceptional circumstances, establish a local processing plant; indeed the host government may even ensure that the MNC is, on entry, subject to a certain degree of local control, or it may take steps to nationalise the investors share without seriously reducing future inflows.[2] The nation state is not, as Kindleberger would have us believe, "through as an economic unit" for political autonomy does permit some degree of control over the nation's economic base.

But these measures, welcome as they are, serve merely to reform marginally the existing system - they cannot

redetermine the logic of a market economy. Thus, I must stress again, the multinational corporations are not, as it were, viewed as the "bad guys" who, with malicious intent, undermine the LDCs' attempt to develop economically - the corporations merely conform to the dictates of economic rationality which appear to ensure the relative advance of the already developed nations and the continued underdevelopment of the less developed countries. In essence, the less developed countries will not develop by further injection of capital funds, technology, or skilled manpower - they can only develop once the structure of inter-relationships within the international economy undergoes fundamental change.

Possibly the only fundamental solution to the problems outlined above lies in active co-operation between less developed countries. Seers (1963) envisages the creation of an international agency, possibly under the auspices of the United Nations, and Penrose (1968) suggests the "... development of a method by which international firms are incorporated under international law and subject to a single international tax" (p. 273). Cooper and Clark strongly encourage co-operation as a means of overcoming the technological dependence of the less developed countries on the industrialised nations.

A co-operative organisation would give rise to certain important benefits - to list but a few, it could, for example, help dispel the harmful bargaining which takes place between LDCs' vying for the services of the MNC; mineral exporting countries, in particular, could benefit from the establishment of a marketing agency. Cipec and Opec offer sound pointers in this direction; the creation of a sophisticated patents office might serve to counter

some of the harmful effects of the international patenting system; an organisation of this nature could be used as an information pool which would allow the LDCs to discriminate between alternative investors and techniques of production.

Ultimately, however, the LDCs would have to co-operate in a manner which allowed them to alleviate the situation of technological dependence, and which enabled them to capture the external economies at present being realised in the metropolis - whilst the output of a single LDC's mining sector might not justify the establishment of a processing and refining plant, the combined output of several LDCs might permit the realisation of the necessary economies of scale; an individual mineral exporter may not be able to provide many of the inputs required in the mining operation, but the combined resources and, particularly, the combined markets of several LDCs might enable a single producer supported by the associated LDCs to compete with established metropolitan suppliers.

Obviously co-operation of this nature could, and frequently does, enhance the prospects of the most powerful member of the association, leaning the process of underdevelopment of its co-operating partners unchecked. In essence, if a co-operative venture is to ensure an equitable spread of development, the co-operating partners will have to relinguish a significant degree of their sovereignity to the centralised planning councils, a pre-requisite which most attempts at co-operation have failed to realise.

NOTES TO CHAPTER 8

1 Scitovsky defines "pecuniary externalities" as the situation where "... the profits of the firm depend not only on its own outputs and factor inputs but also on the output and factor inputs of other firms" (p. 246). That is, pecuniary externalities include interdependence of producers through the market mechanism and, as such , is a meaningless concept in equilibrium theory. "Technological externalities", on the other hand, are concerned with direct interdependence amongst producers. That is, when the output of firm A depends not only on the factors utilised by it, but also on the output of and factors utilised by firms $B_{1...n}$. Thus technological externalities can be incorporated within the framework of general equilibrium theory. It is interesting to note that one of the only two significant examples which Scitovsky and Meade found of technological externalities in industry, is the case where firm A benefits from the labour market created by firms $B_{1...n}$.

2 See Appendix.

APPENDIX

Alternative Ownership Structures

The above analysis implicitly assumes that the corporation's subsidiary is wholly owned by foreign shareholders. There are, however, alternative ownership structures which may affect the tentative conclusions reached above.

Two aspects of ownership structure will be discussed:

1) where the host government stipulates the conditions of entry governing DFI, that is, where the host government stipulates that a certain portion of the subsidiary's equity has to be held by host country nationals or government;

2) the nationalisation debate, that is, where the government acquires a share or total control of the enterprise after the initial investment has been undertaken.

1) Joint Ventures

The government's ability to enforce joint control as a condition of entry will be determined by the bargaining powers of the two parties and, frequently, where the corporation insists on complete control, the government might have to breach or modify stated policy. Nevertheless, empirical research confirms that strong policies encouraging joint control do give rise to a foreign

investment pattern that includes more local control than is found in other countries (Wells, Table 1). Moreover, it appears that corporations which tend to avoid local participation in areas of free choice, have almost the same proportion of their subsidiaries in LDCs which insist upon joint control as in those where they may exercise complete control.

Furthermore, joint ventures are often entered into at the behest of the corporation itself, and it appears that the mineral extractive MNCs are more willing to enter into joint ventures than the non-extractive MNCs. This obviously implies that the MNC envisages some definite benefit arising from joint control. Firstly, joint control does offer some form of insurance against nationalisation, insofar as subsequent nationalisation might affect the interests of both the foreign investors and the local capitalists who have acquired a share of the control of the subsidiary. Effectively therefore, conceding a portion of control to local citizens allows the MNC to purchase a certain amount of political pressure. Secondly, by permitting local participation the firm may acquire access to specialised marketing knowledge and channels of distribution.

It is however by no means certain that the interests of the host economy are advanced by joint control:

Firstly, the MNC may reduce the quantity produced and/or exported from the jointly owned subsidiary in relation to its wholly owned subsidiaries.[1] Empirical evidence supports this assertion (Wells).

Secondly, the corporation will have an added incentive

to withdraw profits by means of transfer payments, although the government will be in a better position to safeguard its interest in this regard. Although Vaitsos finds marginally less evidence of overpricing in the case of joint control, it appears that higher payment is demanded for know-how and management fees from a jointly owned than a wholly owned subsidiary. As Wells notes, "... a common royalty fee of 2,5 per cent of sales would offset reduction of over 130 per cent on transfer pricing, if purchases of components and parts from the parent accounted for 4,2 per cent of sales, including the overpricing margin" (p. 24).

Finally, a joint venture does generate added competition for scarce capital funds. Local capital will only go to the MNC if it earns a higher rate of return than alternate uses permit. There is nevertheless a case for protecting local users of capital.

Thus there is no clear-cut answer concerning the question of joint control. Nevertheless I would agree with Wells, who argues that,

> "In spite of the lack of clear economic gain to the country from having more joint ventures, the government may still be right in its insistence that the foreigner take in local partners. If a feeling of local control over industry or the political ease of allowing foreign investment weighs heavily in the list of government objectives joint ventures may provide advantages over wholly owned subsidiaries ... Joint ventures seem almost always to transfer some control from the parent to the local partner." (p. 35)

Thus the scepticism regarding the possibility of economic gain from joint ventures stems largely from the MNC's

ability to remit profits by means of transfer pricing or, more fundamentally, its tendency to maximise global profits - a joint venture agreement does not close these channels of remission and does not alter the corporations fundamental objectives. The local partner may however act as a watchdog with varying degrees of success and government attempts to encourage joint ventures should be furthered. Where possible, however, government, rather than local capitalists, should secure a share of the control of the MNCs subsidiary.

2) Nationalisation

One of the most controversial questions concerning DFI relates to the current spate of nationalisation in LDCs for, as Bronfenbrenner notes, "... confiscation of property and property income runs counter to Western notions of economic morality. More important it runs counter to Western economic interests." (p. 213)

There are three broad arguments against nationalisation: Firstly, it is argued that nationalisation violates the natural rights of the investor. This argument does not warrant serious attention - the "natural" rights sanctioned by "natural" law and supposedly accepted in the advanced industrial countries might not accord with the "natural" laws of the Bamangwato tribe or Cuban government. The imposition of "natural" law in this regard might justifiably be viewed as just another example of "cultural imperialism", albeit one with distinct economic overtones.

Secondly, it is argued that, if the advanced Western countries provide us with a development model, the tendency

towards nationalisation is inexplicable insofar as confiscation of privately owned interests did not make a significant contribution to Western economic development. Bronfenbrenner convincingly dismisses this argument. He argues that confiscation of a sort did characterise the early economic history of many Western countries - the USA, South Africa, Australia and New Zealand all provide examples of confiscation of natural resources from aboriginal tribes. Moreover, the demonstration effect filtering down from the industrialised countries and the use of sophisticated planning techniques by the LDC planners give rise to a desire for more rapid economic advance in the contemporary LDCs than prevailed in the early years of the industrialised countries' development. Finally, the LDCs are confronted with two conflicting political ideologies and a crucial factor in this conflict is the question of ownership of property. There is therefore no generally accepted natural law or prevailing ideology to which individual LDC governments are expected to subscribe.

Thirdly, and most important, it is argued that nationalisation of foreign owned property is detrimental to the economic interests of the LDC.

Essentially the desire for nationalisation is prompted by what the LDC views as the excessive return the MNC earns on its investment and the large proportion of that return which leaves the host country. The return demanded by the MNC is determined, in part, by the supply price of capital plus a certain allowance for risk. Particularly in the case of mineral extraction the degree of risk attached to the investment declines enormously once the exploration process proves successful. Thus, what

was initially viewed by the LDC as a fair return, now becomes excessive in relation to the reduced risk. The LDC thus threatens to amend the original conditions of entry by demanding a larger share of, or total, ownership of the corporation's subsidiary. This, of course, serves to raise the risk associated with the venture, prompting the MNC to demand a greater return which, in turn, leads to a greater desire by the LDC to nationalise the corporations interests. Nevertheless there are certain important obstacles confronting a LDC intent upon nationalising foreign owned interests:

Firstly, the source country and international aid bodies may bring pressure to bear upon the host country. The Hickenlooper Amendment to the US Foreign Assistance Act threatens withdrawal of aid if US interests are expropriated. The World Bank similarly threatens withdrawal of its assistance in the event of nationalisation of foreign owned interests.

Secondly, the vertically integrated structure of the MNC may prevent the LDC from marketing the output of the industry and/or purchasing crucial inputs. Where the marketing outlets are controlled by the MNC, they can effectively prevent the sale of the nationalised subsidiary's output. The problem may be overcome to some extent by co-operation between mineral exporters (e.g. Cipec and Opec) and the formation of a marketing organisation. Furthermore, unless the producers can combine effectively, the metropolis might close its markets to the output of the nationalising satellite (e.g. Cuban sugar). The problem is intensified when the processing facilities are controlled by the MNC and are situated in the metropolis.

Thirdly, the MNC might organise the production process in such a way as to make post nationalisation production impossible. The Zambia Copperbelt companies (Anglo and RST) are alleged to have failed to train Zambians in certain key positions so as to ensure that the companies remained indispensable in the mining process. Moreover, nationalisation effectively means that the workers previously employed by the MNC now become government employees. Any attempt to reduce the wages of the already privileged mining labour force will manifest itself as a government-worker conflict. If, on the other hand, the government does not attempt to reduce the wages of the mine workers, it will be forced to raise the wages of all other workers in its employ.

Finally, the government may not be able to afford nationalisation. If compensation is paid the government may be hard pressed to raise the necessary foreign exchange.

Thus, it would appear that the vertically integrated structure of the MNC, coupled with the market determined laws of location, ensure the LDC's dependence upon the corporation. This, bolstered by the actions of the metropolitan governments and multilateral aid bodies, brings into question the wisdom of nationalisation.

There is, however, one important caveat - it is, in fact, unlikely, in the event of nationalisation, that the MNC will take steps to halt production or seal off the marketing channels of the nationalised subsidiary. The LDC will not be able to operate the former subsidiary without the assistance of the MNC. Thus Hoskins notes that,

> "... there is an important aspect that the investor should not overlook - namely that confiscation, in essence, is simply a change of ownership. If the expropriated enterprise is a useful part of an economic system, then legal ownership is - at least for economic purposes - immaterial ... the only significant difference is that the investor should act as a contractor or agent rather than a proprietor" (p. 111).

The corporation would exercise control over exporting, the provision of inputs, and the technological and managerial requirements of the LDC, even after nationalisation. Thus the only channel of profit remission closed to it is that by way of dividend payment, and it may rechannel the bulk of its profit remission to transfer pricing and, of course, management fees.

Nevertheless, frequently expropriation or part-expropriation is to be encouraged. Firstly, insofar as the MNC does not wish to forgo its activities in the LDC, nationalisation does provide a means of renegotiating an existing contract and might encourage the MNCs to compete amongst themselves for the management contract offered by the LDC government.

Furthermore, political imperatives would appear to suggest that nationalisation will be resorted to by the LDCs to an increasing extent. As Hirschman has pointed out, the MNC itself should take steps to facilitate the eventual transfer of its assets to the LDC - in this way it can avoid a headlong clash with the government which will, in most cases, be detrimental to both parties Hirschman, in fact, suggests alternative mechanisms whereby planned withdrawal might be institutionalised.

NOTE TO APPENDIX

1 This argument is, of course, not valid under conditions of perfect competition.

S E C T I O N III

DIRECT FOREIGN INVESTMENT IN BOTSWANA
A STUDY OF THE COPPER-NICKEL INDUSTRY

CHAPTER 9

Mining in the post-Independence Era - an Introduction

9.1 Introduction

Section I attempted to outline Botswana's political development and to survey the major characteristics of the political economy. The pattern of economic life in Botswana is similar to that of many LDCs - the great majority of the population is dependent upon the agricultural sector for its livelihood although the most important agricultural asset, livestock, is inequitably distributed. The manufacturing sector is small and is dominated by the Botswana Meat Commission. Although statistics are unreliable, there is evidence of considerable unemployment, particularly in the urban areas, and many Botswana citizens are compelled to seek work in South Africa. Botswana, Lesotho, Swaziland and South Africa are partners in the Southern African Customs Union and in the de facto Currency Union.

At independence (1966) Botswana still relied upon budgetary assistance from the United Kingdom. In the post-independence era there have been several important mineral discoveries, and it is now hoped that the opportunities for large scale mineral extraction will provide means for the development of the Botswana economy.

Mining activity in Botswana is financed and managed by several large multinational corporations. Section II attempted to provide a survey of current literature in the field of direct foreign investment in less developed

countries - chapters 3 and 4 outline a general theoretical model of DFI and chapters 5, 6, 7 and 8 examine the effect which direct investment will have on the host country. This section will attempt to assess the effect of DFI in the copper-nickel industry on the Botswana economy.

Although the analysis concentrates on the copper-nickel industry, minerals of a varied type and of varied economic significance are found in Botswana. This chapter will outline the nature and extent of current mining activity in Botswana, and the likelihood of future developments.[1]

9.2 Botswana's Mineral Resources[2]

a) Manganese

Shortly after independence the mining of manganese ore was revived at two places in south-eastern Botswana, namely, the Kgwakgwe mine approximately 50 km north-west of Lobatse, and the Gopani mine south-east of Lobatse, adjacent to the Transvaal border. In 1970 R 842 836 worth of manganese ore was exported, but exports decreased to R 432 340 in 1971.

Adverse conditions in the manganese market forced the closure of Anglo-American's Kgwakgwe mine at the end of 1971, and of the Gopani mine in March of the same year. Closure of these mines led to the dismissal of 350 and 60 persons respectively.

The Cyril Hurvitz Exploration Company (Pty) Limited is in possession of a mining lease for manganese over an area of 1913 hectares around Otse, near Lobatse, adjacent to the railway line. Proved reserves amount to 300 000 tonnes of battery grade ore and medium scale mining is likely to commence in the near future.

b) Diamonds

In 1966/67 De Beers Prospecting (Botswana) (Pty) Limited discovered diamonds in the Orapa area, west of Letlhakane, approximately 180 km west of Francistown. The largest pipe, Aki, extends over a surface area of approximately 112 hectares, rivalled in size only by Tanzania's Williamson pipe. Another pipe, Dki, approximately 50 km south-east of Orapa, has been located, and other recent discoveries, which are as yet unconfirmed, are likely to make the Botswana diamond fields amongst the world's richest. Further prospecting activity is being carried out by the De Beers group, as well as by United States Steel (Northern Ngamiland) and Cyril Hurvitz Exploration (Ngwaketse District).

The approximate grade of 0,89 carats per tonne at Orapa is relatively high, but the relatively low average value of production (approximately R 8,00 per ton) is explained by the low proportion of gem to industrial stones (12 : 88). The, as yet unconfirmed, discoveries in the Orapa vicinity are thought to bear a higher proportion of gem stones. The Aki pipe was brought into full production in July 1971 and is being mined by De Beers Botswana Mining Company, a member of the De Beers Group of companies. The De Beers Botswana Company has been allocated a quota of 4 per cent of the sales of the Central Selling Organisation for the Orapa mine. The 1972 diamond production was valued at about R 20 million.

c) Copper and Nickel

In 1959 Bamangwato Concessions Limited (BCL), a subsidiary of Botswana RST (BRST) commenced prospecting activity in the Bamangwato tribal territory. Copper deposits were

discovered west of Francistown in the early 'sixties and, in 1964, substantial copper and nickel bodies were located at Selebi and Pikwe, approximately 90 km south-east of Francistown. By 1971 it was firmly established that ore reserves at Selebi and Pikwe totalled:

	Million Tonnes	% Nickel	% Copper
PIKWE			
Proven	22,1	1,45	1,14
Probable	9,0	1,13	1,09
SELEBI			
Proven	10,0	0,70	1,56
Probable	2,6	0,88	1,28

Mining at the rate of approximately 2 million tonnes per annum, the life of the Selebi-Pikwe mines is expected to extend over some 23 years. Mining operations at Pikwe commenced in late 1973, and smelting operations in early 1974 when the first shipment of matte was delivered to the US refining plant. Mining of the Selebi deposits is expected to commence in 1979. The Smelting process is also expected to release 127 500 tonnes of marketable sulphur each year.

BCL also discovered copper deposits in the Matsitama area, 80 km west-northwest of Francistown, in 1963/64. In 1968 it was announced that the Matsitama ore reserves totalled

	Million Tonnes	% Copper
Proven	4,7	2,24
Probable	1,72	2,15
Oxidised Ore	1,46	2,87

It appears however that no further work has been carried out on these deposits. BCL is also investigating copper deposits in the vicinity of the old Bushman Mine.

Substantial copper deposits estimated at 7,6 million tonnes of ore (1,4 per cent copper, 0,8 per cent nickel) have been located at Selkirk and Phoenix in the Tati area. The mineral rights in this area are privately owned (by the Tati Company) and, although the initial exploratory work was undertaken by an Anglo American subsidiary, Sedge Botswana (Pty) Limited, it appears that Anglo and the Tati Company have not been able to reach agreement regarding more intensive prospecting or actual exploitation.

US Steel and the South African Vendome Company (Pty) Limited are also engaged in copper prospecting in Ngamiland in the extreme north-west.

d) Coal

The Geological Survey Department has devoted considerable time and energy to prospecting for coal. Its efforts have been rewarded by the discovery of substantial deposits at Morupule, approximately 6 miles west of Palapye, and at Mmamabula, approximately 80 miles south of Palapye. The Anglo American Corporation is now responsible for prospecting in these areas. To date, their activities have proved reserves of approximately 5 000 million tonnes over an area of 256 square km in the Morupule area, and a further 400 million tonnes over an area of 44 square km in the Mmamabula region. The coal is of a low grade (non coking) but is suitable for power generation.

The 1973 - 78 National Development Plan briefly mentions the prospect of converting Botswana's coal resources into oil,[3] which, if successful, will substantially increase the value of the coal deposits. A recent report indicates that the Royal Dutch-Shell group have been awarded a special prospecting licence to seek coal, oil shales, and radio-active minerals over an extensive area in the eastern and southern regions. The report indicates that the company's chances of finding oil shales are small, although there are indications of vast undelineated coal fields on the edge of the Kalahari.[4]

e) Brine

Makgadikgadi Soda Limited, a subsidiary of BRST, has concluded lengthy investigations into the brine deposits located beneath the Sua Pan which forms the Eastern part of the Makgadikgadi Depression, west of Francistown. The production of salt, soda ash, and sodium sulphate is under consideration. Deposits are sufficient to support the minimum commercially feasible levels of production which are estimated at 80 000 tons of soda ash and 100 000 tons of salt per annum. Although the company has not yet released its final report it appears that production will commence within the current plan period (i.e. before 1978).

f) Other Minerals

Various other minerals are being sought in Botswana. Asbestos Investment (Pty) Limited is prospecting for asbestos in the area of the old Moshaneng mine and Johannesburg Consolidated Investment is undertaking widespread prospecting activities in the Mochudi area. Semi-precious stones are being sought in many areas of Botswana.

As at 31st December, 1971 42 prospecting licences were in force. In 1971 private firms spent approximately R 4 200 000 on prospecting activities. An additional R 60 000 accrued to the Central Government for licencing and rental fees, and a further R 60 000 to the District Councils. As at 31st December, 1971 there were 3 mining leases in force covering the Orapa Diamond mine, the Selebi-Pikwe copper-nickel deposits, and the manganese mine at Otse. A small notarial mining lease was backdated to February 1967 to cover the Gopani manganese mine. Mineral rights in the Tati area are privately owned. All mineral rights vested in the tribal authorities were transferred to the state by the Mineral Rights in Tribal Territories Act of 1967. Prospecting rights and mining leases are granted in terms of the Mines and Minerals Act of 1967 which consolidated all previous legislation concerning mining.

This dissertation will concentrate on the development of the copper-nickel resources at Selebi-Pikwe. Manganese mining is conducted on too small a scale to warrant detailed attention. At this stage, the exploitation of the coal resources is dependent entirely upon the demand generated by the Selebi-Pikwe complex and, therefore, will be discussed as an integral part of the copper-nickel project. Although, on the face of it, the sophisticated, large-scale diamond mining industry warrants detailed attention, it appears that certain characteristics peculiar to diamond mining will limit the extent of its impact upon the rest of the economy. Whilst it is an extremely important contributor to government revenue and foreign exchange, it will provide employment for only a small number of workers when compared with the copper-nickel industry. Furthermore, it will generate insignificant, if any, linkages to the rest of the economy.

The copper-nickel industry, on the other hand, is likely to be of considerably greater significance. The capital sum required is enormous in relation to total capital formation in Botswana and, of course, in relation to that of any other enterprise; with the exception of the Civil Service and, possibly, the Botswana Meat Commission it will provide employment for a greater number of workers than will any other enterprise; its contribution to government revenue will be considerable; and it is hoped that it will encourage, via the investment multiplier, the further development of the industrial sector. Furthermore, the copper-nickel industry has necessitated considerable expenditure on infrastructural facilities.

It is not necessary to rationalise a decision to study the copper-nickel industry in these terms. Conversely, the relative size and potential impact of the copper-nickel industry does not suggest that a study of diamond, or even manganese, mining would be inconsequential or irrelevant. I wish merely to suggest that if, by industrialisation, Botswana is to escape from the impasse in which so many LDCs find themselves, the obvious industry to concentrate on is the copper-nickel industry.

NOTES TO CHAPTER 9

1 This chapter relies heavily upon information contained in the annual reports of the Geological Survey Department. The most recently published report is that for the year ended December, 1971. Additional information contained in the National Development Plans, 1970 - 75 and 1973 - 78 has also been used.

2 See Map C.

3 This technique is used by SASOL.

4 Cape Times - 6th March 1974.

CHAPTER 10

Botswana's Copper-Nickel Industry - the Corporate and Technological Structure

10.1 Introduction

The tentative conclusions reached in Section II rest on the assumption that the process of DFI in LDCs is dominated by large MNCs operating within oligopolistic markets. These firms use sophisticated, capital intensive techniques of production in the host country. This pattern is confirmed by an analysis of the corporate and technological structure of Botswana's copper-nickel industry.

The ensuing chapter provides little more than a brief summary of the extremely complex financial arrangements governing the Selebi-Pikwe project.[1] At the ceremony marking the successful negotiation of the major mining contracts, Sir Ronald Prain, then chairman of the companies responsible for the mining of the Selebi-Pikwe copper and nickel resources, said,

> "By any reckoning this is an historic occasion. It marks the culmination of sixteen years of discussion, scientific endeavour, negotiation, and the creation of an international financial structure which can have few, if any, parallels in complexity and scope" (cited Ostrander, p. 1).

One cannot but agree with Prain. The financial structure of the Selebi-Pikwe project involves at least three governments (Botswana, West Germany, South Africa) and numerous government agencies; several giant MNCs -

American Metal Climax,the Anglo American/Charter Consolidated Group and their subsidiaries, Metallgesellschaft, and, to a lesser degree, Mineral Separations Ltd, and N.M. Rothschild and Sons, Ltd; banking and other financial institutions in West Germany, South Africa and the United Kingdom; and, not least, several multilateral aid bodies. I must repeat therefore that this chapter does not pretend to provide more than the barest skeletal outline of the complicated arrangements between the governments, the companies and the other authorities.

10.2 The Corporate Structure

The companies directly involved in the exploitation of the Selebi-Pikwe resources are Botswana RST, Limited (BRST) and its subsidiary, Bamangwato Concessions Limited (BCL).

Negotiations concerning the granting of prospecting rights in the territory of the Bamangwato tribe commenced in 1959. The two parties to the negotiation were the Bamangwato Tribal Authority and Rhodesian Selection Trust (later renamed Roan Selection Trust), a company controlling an important share of the Zambian (then, Northern Rhodesian) Copperbelt. The US multinational, American Metal Climax,held a 43,3 per cent share in RST. At the 1959 negotiations BCL was formed in order to undertake exploratory work in the territory. The presence of copper and nickel was confirmed at Selebi and Pikwe in 1963 and 1965 respectively.

In July 1967 BRST was incorporated in Botswana to hold RST's interest in the mineral riches fully confirmed earlier that year. BRST's sole assets comprised a

60,95 per cent interest in the share capital of BCL, and a 64,63 per cent interest in Makgadikgadi Soda Limited.[2] The remaining 39 per cent of BCL's share capital was held by Mineral Separations Limited (23 per cent), the Anglo American Corporation of South Africa (AAC) (11 per cent), and the International Nickel Company (5 per cent). International Nickel's share was purchased subsequently by the AAC raising the latter's share to 18 per cent. In the event of BCL becoming a mining company it was agreed that the Botswana government would receive a 15 per cent gratuitous share in the company. In April 1968 a BRST rights issue offered to RST holders gave AMAX a substantial share (43,3 per cent) in BRST, an assortment of small shareholders controlling the remainder of the company.

In order to finance the Selebi-Pikwe project the major financiers required considerable guarantees but would not accept BRST as the sole guarantor. Amax agreed to guarantee one-half of the required sum. Mineral Separations were unwilling to participate in the guarantees. The AAC/Charter Consolidated Group indicated it was willing to participate in the guarantees provided that its shareholding in the project which, at the time, comprised a 16 per cent share in BCL, be increased considerably to equal that of Amax. They also demanded participation in the technical and managerial control of the project. It was decided that BRST should purchase the minority shareholding in BCL by offering the minority shareholders BRST shares in exchange for their holdings in BCL. The great majority of Mineral Separations interest in BCL was purchased by AAC/Charter and Amax. BCL was required to increase its equity share capital by R 30 000 000.

The re-organisation of BRST and BCL was affected by a rights issue amounting to R 18 700 000 in mid-1972. The ultimate outcome of the re-organisation is that BCL is controlled by BRST which holds 85 per cent of the former's equity. The Botswana government has received a 15 per cent gratuitous share of BCL's equity.

BRST's equity is controlled as follows:

AMAX	29,82 %
AAC/Charter	29,82
Mineral Separations	5,73
N. M. Rothschild and Sons	0,06
General Public (small lots)	34,57
	100,00 %

Thus Amax's share in the project has declined slightly, the public's interest has remained the same, and AAC's share has risen substantially.[3]

The estimates of the cost to BCL of the project have escalated rapidly. Originally it was estimated at R 86,5 million[4] and, on the basis of this estimate, the financial agreements were negotiated. R 43 million was provided by a West German consortium of banks led by the Kreditanstalt für Wiederaufbau (KfW); R 13,5 million was provided by the Industrial Development Corporation of South Africa (IDC), conditional upon the purchase of equipment to the same value from a South African producer. The balance of approximately R 30 million was provided for by the enlarged equity capital of BCL, and the necessary bridging finance was provided by Union Acceptances Limited, a member of the AAC/Charter Group.

In November 1971 the cost estimates were revised upward by R 14,5 million[5] to R 101 million. The KfW loan then stood at approximately R 47,8 million.[6] Amax and AAC/ Charter have agreed to lend BRST the shortfall and they, in turn, will advance the necessary funds to BCL. By the end of 1973 BRST had borrowed approximately R 21 million from Amax and AAC/Charter.[7]

In December 1972 and 1973 the cost estimates were revised upwards once again, because of technical complications. Furthermore, these technical complications have delayed revenue inflows and, as a result, additional bridging finance, conservatively estimated at R 15 million, was required.[8] In the light of these rapid cost escalations and the consequent postponement of revenue inflows BRST has decided to increase its equity share capital by a substantial amount. As at December 1973 the company was authorised to issue 22,5 million shares (par value R 2 each) and 17 979 292 had been issued leaving about R 9 million of unissued capital. This is deemed insufficient to meet requirements and the company has decided to increase the authorised capital to R 80 million.[9]

In the most recent BRST interim report the Phase I cost estimates (that is, excluding the Selebi Mine) have been revised upwards to R 200 000 000 although the directors acknowledge that the total requirements may well exceed this figure.[10] Technical problems continue to plague the project and the level of output is extremely low. In the six month period between 31st December 1973 and 30th June 1974 loans to BRST had increased from R 75 086 000 to R 101 543 000 - Amax and Anglo have provided approximately R 18,5 million of the additional loans and therefore must have lent approximately R 40 million to BRST.

The bulk of the loan and completion guarantees have been undertaken by AAC/Charter and Amax. A West German firm, Metallgesellschaft, has provided considerable guarantees.

In addition to the companies' financial arrangements, the Botswana government has had to raise considerable sums of money in order to provide the required infrastructure.[11]

Thus, in effect, the financial and technical resources of Selebi-Pikwe project are controlled by BRST's two major shareholders, the AAC/Charter Group and Amax.

It is not necessary to attempt to detail the size and wealth of either company. The AAC/Charter Group controls substantial interests in many sectors of the South African economy, particularly mining, although its interests extend well beyond the confines of the republic. Its interests in, inter alia, Zambia, Rhodesia, Canada, Australia, Zaire, Portugal, Swaziland, secure, beyond all doubt, its multinational status. Vernon (1971) cites Amax as being one of the nine largest of the US MNCs engaged in non-petroleum mineral extraction.

Both companies have a substantial stake in copper mining, particularly in Southern and Central Africa.

10.3 The Technological Structure

In Section II it is argued that the process of DFI usually transfers technology of a characteristic type. This technology will be of a capital intensive nature and the skill component of the small workforce is likely to be large.

Baldwin identifies three important characteristics of copper production: a) a low aggregate labour coefficient; b) a high capital coefficient; c) significant economies of scale.

The general characteristics outlined above are apt description of the Selebi-Pikwe copper-nickel project.

Any attempt to calculate the labour and capital coefficients is bedevilled by a lack of statistical data. It is particularly difficult to distinguish between those workers employed in copper production itself and those employed in the construction of the mine and the infrastructural facilities - if the latter are included in the employment figure the labour coefficient will be considerably higher in the initial phases of the project than in the later, purely production, phase.[12] Moreover, as will be pointed out below, the official statistics do not disaggregate sectoral employment figures by individual enterprise. With the assistance of government and company officials and company reports I have been able to estimate the numbers employed by BCL and BRST and this estimate has been used in calculating the number of employees per R 1 000 of output (the labour coefficient) for the copper-nickel industry.

Bearing these difficulties in mind, the following table is the result of an attempt to calculate the labour coefficient of selected industries in Botswana.

The table below indicates that the mining sector is considerably less labour intensive than the construction sector. It does, however, appear that the manufacturing sector is marginally less labour intensive than the mining sector. This situation will be reversed in the near future.

TABLE 10.1 Labour Coefficients[a] for Selected Botswana Industries, 1971/72 (per R 1 000)

Industry	Labour Coefficient
Mining[b]	0,101
Manufacturing[c]	0,095
Construction	0,311

Notes: a) see footnote 12 for a definition of labour coefficient

b) this figure is calculated from 1971/72 employment and output figures for the whole mining sector

c) manufacturing includes, and is dominated by, the Botswana Meat Commission

By 1971/72 production had not commenced at Selebi-Pikwe although approximately one-half (that is, 1 000) of the copper-nickel industry workers were already in the employ of the company. Thus within the next year the output of the mining sector will increase greatly and employment will increase only slightly, lowering the labour coefficient in the mining sector by a considerable amount.[13]

Unfortunately it is impossible to calculate the capital coefficients for these industries, as figures for capital investment in the manufacturing and construction sector are not available. The mining sector's capital investment is considerably greater than that of any other sector. In 1971/72 gross capital formation in the mining sector totalled R 27,3 million and in the manufacturing and construction sectors gross capital formation totalled R 2 million and R 1,7 million respectively. These figures

are not a realistic indication of the relative size of the capital investment in each industry,[14] but it appears that the copper-nickel industry's capital coefficient will be moderately high.

The copper-nickel project has made use of the most sophisticated capital intensive techniques available. Initially, the ore at Pikwe was to have been mined by underground methods only, although, at a later stage, it was decided to switch a significant part of the mining process to the open cast method. The latter method is considerably more capital intensive because it involves the purchase of heavy bulldozers, graders, etc. The work-force employed in open cast mining contains a larger skilled element, thus increasing the human capital component. Unofficial estimates of the decline in employment resulting from the switch from underground to open cast methods range from 150 to 600 workers. The smelting process employs a highly sophisticated method and machinery developed in Finland.

It appears that the mining company has faced considerable technical problems since the commencement of operations. The Anglo-American Annual Report (1973) refers to the "teething problems" confronting the Selebi-Pikwe operations, although the rapidly escalating cost estimates for the project suggest that the technical problems are of quite a serious nature. The exact nature of these technical problems is spelt out in the BRST Chairman's most recent annual report. The major problems appear to stem from particular features of the Selebi-Pikwe ore which have necessitated, inter alia, the construction of an expensive washing plant and costly alterations to the ore feeder system. Other peculiarities of the ore content have resulted

in minor explosions in the concentrate drying, transport and storage facilities and consequently to a series of plant stoppages. In September large production losses occured as a result of major plant breakdowns in the boiler system. Considerable uncertainty has been created by the situation in Lourenco Marques and the company might be compelled to use alternate port facilities.[14] Remedial measures are being undertaken at considerable cost. As pointed out above, these technical problems have resulted in the postponement of revenue inflows and the company has needed to secure additional bridging finance to meet its recurrent obligations and the additional capital costs involved.

10.4 Conclusion

The copper-nickel ore at Selebi-Pikwe is mined by Bamangwato Concessions Limited. This company is controlled by Botswana RST, which owns 85 per cent of BCL's equity capital and the remaining 15 per cent is held by the Botswana Government. BRST, in turn, is controlled by two large multinational corporations, the Anglo American/Charter Consolidated Group and American Metal Climax. The project is highly geared and loans have been raised from a number of sources. Technical problems have necessitated an increase in both the loan and equity capital. Anglo and Amax have provided the additional loan finance and an offer of a rights issue, probably in early 1975, will raise the additional equity capital.

Both Amax and AAC/Charter have considerable experience in copper mining in Southern and Central Africa (Zambia) and they have elected to use highly capital intensive techniques of production - the 1971/72 labour coefficient

of the mining sector is low and will decline markedly when the value of the Selebi-Pikwe output is included in the calculation. It is unlikely that the company (or the government, had they undertaken the venture) could have employed significantly different techniques of production. If the government had elected to mine on a considerably smaller scale the technological characteristics might have been modified. Small scale copper extraction did not prove successful in Zambia or Botswana, and if extraction on a large scale is desired it is unlikely that the technology employed could have been modified very significantly.

NOTES TO CHAPTER 10

1 For a detailed account of the financial arrangements see: Botswana RST Limited, Circulars to Shareholders dated 19th July, 1971; 30th November, 1971; 28th April, 1972. See also Botswana RST Limited Annual Report, 1973.

2 The company that will be responsible for the eventual exploitation of the brine deposits of the Sua Pan.

3 Note that Amax's 43,3 per cent interest in BRST when it controlled 60,95 of BCL is only slightly smaller than a 29,82 per cent interest in BRST which now controls 85 per cent of BCL.

4 See Circular to Shareholders dated 19th July, 1971, para 6.

5 See Circular to Shareholders dated 30th November, 1971, para 6.

6 The Deutsche Mark total remains the same (DM 222 million). The small increase probably results from currency fluctuations.

7 Botswana RST, Chairman's Statement, year ended 31st December, 1973.

8 Chairman's Statement, 1973.

9 Idem - note too that none of these estimates include the additional finance required by 1977 to bring the Selebi Mine into operation. It is estimated that this will require an additional R 5,7 million.

10 See Botswana RST Limited - Interim Report to Shareholders dated 25th September 1973.

11 This is discussed in chapter 12.

12 The labour coefficient is defined as the number of employees per R 1 000 of annual gross output. A simple example will clarify this point. If annual gross output is valued at R 10 000 and 10 people are employed the labour coefficient is equal to 1.

If the number of employees doubles, the labour coefficient will also double, i.e. if output remains at R 10 000 and the number of employees increases to 20, the number of employees per R 1 000 of output is 2. Conversely, if employment remains constant and output doubles the labour coefficient will halve.

13 See footnote 12 for a hypothetical example. By 1976 the value of the output of the Pikwe Mine will be at least R 50 million and the numbers employed by BCL and BRST will be about 2 500. The labour coefficient will thus be as low as 0,05.

14 See Botswana RST Limited - Interim Report to Shareholders dated 25th September, 1974.

CHAPTER 11

The Appraisal Criteria

11.1 Introduction

The corporate structure of the copper-nickel mining industry in Botswana closely approximates the ideal-type outlined in Section II. The firms involved in the financial and managerial control of the Selebi-Pikwe venture are large MNCs with mining and industrial interests in many parts of the world, including the neighbouring territories in Southern and Central Africa. The firms have quite rationally and predictably elected to employ a capital intensive technique of production. The implications of this structure for the Botswana economy are broadly similar to those outlined in Section II with relevant modifications made in light of peculiar circumstances prevailing in Botswana. Thus, before proceeding any further, it is necessary to outline a set of criteria in terms of which the growth of the mining development at Selebi-Pikwe can be assessed.

11.2 The Criteria

The most recent national accounting data emphasis the measurement of value added.[1]

The Ministry of Finance and Development Planning has attempted to project its calculation of value added and, in so doing, has arrived at the following estimates (see Table 11.2).

TABLE 11.1: Production Account of Mining Activities 1971/72 (1973 prices) (R million)

Inputs		Outputs	
Intermediate Consumption	5,5	Sales of Characteristic Products	15,7
Depreciation	0,1	Minerals not yet sold	1,0
Wages and Salaries	1,0		
Indirect Tax	0,1		
Operating Surplus	10,1		
Value Added[a)]	11,2		
Total	16,7		16,7

Source: National accounts of Botswana

TABLE 11.2: Estimated Production Account of Mining Activities in 1977/78 (1973/74 prices)

	Diamonds	Selebi-Pikwe	Sua Pan
Intermediates	0,6	8,0	3,5
Depreciation	-	-	-
Wages and Salaries	5,8	5,9	1,0
Profits	32,6	29,9	8,0
Interest Paid	-	6,2	-
Value Added at Factor Cost	38,4	42,0	9,0
Indirect Taxes-Subsidies	-	-	-
Value Added at Market Price	38,4	42,0	9,0

Source: Ministry of Finance and Development Planning

Mining is expected to make a significant contribution to the Gross Domestic Product, and a somewhat smaller, but still highly significant, contribution to the Gross National Product. The divergence between the contribution to the Gross National Product and the Gross Domestic Product arises largely from the remission of factor payments to expatriate workers and, of course, to those shareholders resident and incorporated abroad.

TABLE 11.3 Estimated Gross Domestic Product and Gross National Product at Factor Cost (1973 Prices) for 1971/72 and 1977/78

Sector	GDP 71/72	GNP 71/72	GDP 77/78	GNP 77/78
Agriculture	25,2	24,8	35,1	34,3
Hunting, Fishing, Forestry	2,2	2,2	2,6	2,6
Mining and Prospecting	12,5	5,4	60,8	45,6
Manufacturing	7,7	6,8	12,3	11,2
Construction	9,4	7,5	13,0	10,4
Water and Electiricty	0,5	0,5	5,6	5,6
Trade, Hotels and Restaurants	5,9	5,3	11,7	10,5
Transport and Communications	4,2	3,4	8,3	6,6
Financial Institutions, Business Services and Real Estate	4,6	2,3	9,1	4,6
Personal and Community Services	0,8	0,8	1,2	1,2
Private, Non-Profit Services	0,9	0,9	1,4	1,4
Central Government	9,8	9,0	22,0	19,3
Local Government	2,3	2,3	5,3	5,3
Traditional Ownership and own Construction of Dwellings	2,4	2,4	2,9	2,9
Unallocated	- 0,8	- 0,8	- 1,6	- 1,6
Total	87,6	7,28	189,7	159,9

Source: National Development Plan, 1973 - 78

Mining is thus expected to make a significant contribution to the growth of the Botswana economy. Whereas in previous years the mining sector acted as a drain upon the Gross Domestic Product,[2] by 1971/72 approximately 14,3 per cent of the GDP was directly attributable to the mining sector, expected to rise to approximately 32,0 per cent in 1977/78.

In 1971/72 approximately 7,4 per cent of the Gross National Product is directly attributable to the mining sector, rising to 28,5 per cent in 1977/78. This leads us to an extremely important point: The value added is only significant in so far as a portion of that value is retained in the Botswana economy. My primary focus is, as it were, on national value added rather than domestic value added. This priority is incorporated in the model computation outlined in Section II and will be dealt with in the following chapters.

The value added computation used by the Botswana planners is considerably more compressed than the model computation used in Section II. In the later chapters, when each of the elements involved in the value added calculation is analysed, I will expand the individual categories used by the Botswana planners in order to incorporate all the elements suggested in Section II.

But this is not sufficient, for there are certain broader, but no less important, criteria enunciated by the Botswana planners and politicians, an assessment of which cannot satisfactorily be incorporated into the value added tables presented above.

Introducing the 1970 - 75 National Development Plan, the vice-President and Minister of Finance and Development

Planning, Dr Q. K. J. Masire, stated that the government's key economic objectives were,

> "1) to ensure the fastest possible rate of economic growth in a manner designed to raise the living standards of the great mass of the inhabitants of Botswana;
>
> 2) to achieve budgetary self-sufficiency in the shortest possible time consistent with rapid economic growth;
>
> 3) to maximise the number of new job opportunities; and
>
> 4) to promote an equitable distribution of income, in particular by reducing income differentials between the urban and rural sectors through rural development."

In the introduction to the 1973 - 78, National Development Plan these objectives were restated, although the vice-President noted that budgetary self-sufficiency had already been attained. The other three objectives remain in force and accord closely with Seers' three criteria of equity, employment, and elimination of poverty, the Botswana government's accent on rural development merely constituting a special case of (or, possibly, a means of attaining) all three objectives.

These objectives have been restated by the President who, on one occasion, noted that,

> "My idea of an independent economy is one which is less vulnerable to weather conditions and which is capable of being managed in a way which permits government to plan for the welfare of all its citizens; to create as many jobs as possible, to spread development as equally as possible throughout the country, to see that rural development keeps pace with the development of our towns,

> and, above all, to ensure that agricultural and other rural activities can bring people a decent living." (p. 5)[3]

It should be noted that the growth of the mining sector is not seen as providing a palliative for Botswana's economic ailments. The 1973 - 78 National Development Plan acknowledges that mining might introduce severe "economic distortions" and generate serious "social problems". The President has stressed that the base upon which Botswana's economy is developing, namely livestock and mining, is too narrow and will have to be widened to incorporate the broad mass of the population. Thus, it would appear that the Botswana government is concerned, at least formally, that the returns from the mining project be equitably distributed throughout the country. They do not, it would seem, agree with Taylor Ostrander, an Amax, BCL and BRST executive, who asserts that

> "... fortunately as business men and mining executives, lawyers and economists, we had neither the time nor the inclination to enter into elaborate analyses of the differentations between our separate 'elitism', or make the elaborate probings of personal relationships and animosities so beloved by sociologists" (p. 3).

11.3 Conclusion

Thus, given that the Selebi-Pikwe copper-nickel resources are being exploited by large MNCs employing capital intensive techniques of production, the remainder of this dissertation will concern itself with an assessment of the copper-nickel industry in terms of the criteria outlined above.

In the following chapter I will analyse the question of employment and wages, linkages, and government revenue. All are related to the question of value added and retained, both directly and indirectly, as a result of the mining operations. They are also, of course, related to the question of distribution or, what I choose to call, the equity criteria. Thereafter the balance of payments implications will be examined which, inter alia, allow us to consider the question of value retained. The question of distribution will be the subject of the fourteenth chapter. This latter chapter will, in essence, constitute a summary of much that precedes it, although it will also raise the question of the power relationships arising in response to the growth of the foreign controlled mining sector.

NOTES TO CHAPTER 11

1 In the table below (11.1) value added is derived by deducting the value of intermediate consumption (R 5,5 million) from the value of outputs (R 16,7 million), or by summating the factor payments - the operating surplus figure in Table 11.1 is a residual. Note that because Botswana is a member of the Customs Union it is inevitable that the figure for intermediate consumption will include an element of indirect taxation. Duty is imposed at the point of entry and therefore Botswana imports are frequently valued on a duty-paid basis. Therefore the figure for intermediates is unavoidably inflated.

2 In previous years mining has acted as a drain on the GDP because of the convention of debiting prospecting expenses in the year in which they are incurred. The value of the output from prospecting services is zero although, obviously, if the knowledge acquired is valued prospecting activities might make a substantial contribution to GDP. In 1968 the mining sector reduced the GDP by over R 1 million.

3 See also Africa Contemporary Record, 1971/72; 1972/73.

CHAPTER 12

The Development of the Copper-Nickel Industry and the Botswana Economy - Labour, Linkages and Government Revenue

12.1 Introduction

In the previous chapter it was established that the Botswana government employs two complementary sets of criteria - the narrow value-added approach and the broader distributional criteria - which are similar to (and indeed strongly influenced) the criteria used in Section II.

This lengthy chapter will attempt to assess the impact of the Selebi-Pikwe project upon wages and employment and government revenue, and measure the extent of the linkages generated by the copper-nickel industry, in terms of the criteria enunciated above. The contents of this chapter closely follow the framework used in chapter 5.

In the introduction to this dissertation mention is made of the unreliable nature of many of the statistics used. This shortcoming is particularly evident in this Chapter and Chapter 13 and, where necessary, an attempt will be made to correct errors arising as a result of inadequate date.

12.2 Labour

In the introductory chapter an attempt was made to outline

the general characteristics of the labour market, and it appears that the situation in Botswana does not differ materially from the hypothetical LDC of Section II. A significant portion of the population is unemployed; traditional agriculture is the major source of income; the skill level of the local workforce is low and the economy relies heavily upon skilled expatriate labour; there is widespread migration between the urban and rural areas and between Botswana and South Africa. This section concentrates upon wage and employment practices in the copper-nickel industry, although the implications of the wage and employment structure created in the mining sector are extremely widespread and will exercise an important influence over conditions in the labour market as a whole.

1) Employment

One of the most important shortcomings of the employment statistics is the failure to disaggregate sectoral data by individual establishment. Furthermore it should be noted that employment projections do not only take account of the expansion of present mining activity but also recognise the possibility of commencing exploitation of additional mineral resources, particularly the brine deposits of the Sua Pan.

Despite the lack of official data on employment at Selebi-Pikwe I have, with the assistance of government and mining officials, been able to estimate the numbers employed in the copper-nickel industry. It appears that in 1972 employment at Selebi-Pikwe accounted for 1 000 of the 1 680 people employed in the mining sector. It is estimated that by 1972 approximately 50 per cent of the

Selebi-Pikwe employees were at post thus, at present, the copper-nickel industry should employ approximately 2 000 people. These estimates are corroborated by BRST's Annual Report for 1973 - at year end BCL employed 1968 Botswana citizens and 263 expatriates. If this number remains constant until 1978 then, by that year, copper-nickel mining will account for approximately 65 per cent of total employment in the mining and quarrying sector. The 1973 Manpower Report covered nine mining and quarrying establishments (which incorporates all mining and quarrying activity). Of the remaining eight, two employed more than 200 people, these being the Orapa Diamond Mine and a large quarrying establishment. Eight of the nine mining and quarrying establishments were responsible for somewhat less than 40 per cent of total employment in the mining sector. Thus the overwhelming importance of the Selebi-Pikwe project as regards the provision of employment in the mining sector is a well-established fact, and even if we are forced at times to rely upon disaggregated statistics it appears that the analysis will not be significantly impaired.

The table below indicates the relatively minor role played by the mining industry in the provision of employment. In 1972 and 1978 only transport and communications and local government account for a smaller proportion of total employment. We see that from 1972 to 1978 mining's share of total employment is expected to increase marginally, whilst in the same period manufacturing's share is expected to increase slightly and central government's quite markedly. Construction's share of total employment, on the other hand, is expected to decrease from 13,4 per cent in 1972 to 10,8 per cent in 1978. It is interesting, however, to note the four-fold increase in construction employment between 1968 and 1972.

TABLE 12.1 Employment by Economic Sector - 1968 - 1978

Sector	1968 share	%	1972 share	%	1978 share	%
Agriculture	4 143	16,8	5 058	10,5	6 650	8,3
Mining and Quarrying	814	3,3	1 680	3,5	3 200	4,0
Manufacturing	1 691	6,8	2 639	5,5	5 730	7,2
Construction	1 566	6,3	6 468	13,4	8 670	10,8
Commerce and Finance	4 263	17,2	6 342	13,2	10 650	13,3
Transport and Communication	1 135	4,6	1 121	2,3	2 200	2,8
Local Government	977	3,6	1 022	2,1	2 000	2,5
Education	1 842	7,5	3 361	7,0	4 500	5,6
Other Services	2 301	9,3	3 152	6,5	5 000	6,3
Central Government	5 989	24,2	9 328	19,4	18 100	22,6
Domestic Services	N/A		8 029	16,7	13 300	16,6
Total	24 721		48 200		80 000	

Source: National Development Plan 1973 - 1978 and Manpower and Employment in Botswana

Notes: N/A - not available. Errors may appear owing to rounding.

Furthermore, as I shall outline below, mining accounts for a very small proportion of skilled employment in Botswana - 1,2 per cent of all skilled workers are employed in the mining sector. The Central Government accounts for 39,9 per cent of skilled employment, education for 22,9 per cent, commerce and finance for 10,4 per cent, and the manufacturing and construction sectors for 4,9 per cent and 6,1 per cent respectively.

2) Skills and Earnings

It has been established that mining accounts for a relatively small portion of total employment in the Botswana economy.

The theoretical analysis suggests that the large scale, technologically sophisticated foreign investor will rely heavily upon imported skilled workers. Mining's small contribution to skilled employment in the economy would suggest otherwise. The following table, 12.2, does, at first glance, further invalidate the hypothesis that the MNC's labour force is biased towards skilled employment. The only sectors which have a lower skill intensity than mining are the agricultural, construction and services sectors, the latter's (i.e. services) low rating is explained by the inclusion of domestic servants in this category. Education, as is to be expected, has an extremely high skill intensity as does the Central Government. The skill intensities of the manufacturing, commercial and transport sectors are all markedly higher than that of the mining sector.

However, despite the fact that mining employs so few skilled workers it has experienced considerable difficulty in localising its skilled workforce. 90 per cent of the Central Government's skilled workforce are Botswana citizens, and the commercial (80 per cent), agricultural (69 per cent), manufacturing (78 per cent) and construction (58 per cent) sectors have not lagged behind. Mining's localisation position (37 per cent) thus appears relatively unsatisfactory although somewhat superior to the localisation position of the transport sector (28 per cent).

How is this to be explained? Obviously the other sectors are not controlled by a foreign corporation and are thus not able to utilise a well established cadre of skilled workers.[1] More important, however, the relative localisation positions bear out Arrighi's hypothesis that capital intensive techniques do not only employ a smaller number of workers than do more labour intensive industries but they also require a larger proportion of high-level manpower than do more labour intensive industries. Botswana's reliance on expatriate labour is particularly strong at the skill level required by the mines and it is primarily for this reason that, firstly, they have been unable to localise their skilled workforce, and, secondly, have been compelled to pay their highly skilled workers such high wages.

Table 12.3 provides supporting evidence. It in fact indicates that more than half of the mining sector's skilled employees are paid a wage in excess of R 150 per month. This is considerably higher than any other sector with the exception of transport and communications. In the skill intensive sectors of central government and education only 13,1 per cent and 6,0 per cent respectively of the skilled employees are paid a wage in excess of R 150. The skill differential and, therefore, the earnings differential coincides with the degree of localisation, that is, the more non-Batswana employed the greater the number of workers earning in excess of R 150. The skill requirements of the capital intensive mining sector cannot be met from within the ranks of Botswana citizens - the mines therefore draw a large portion of their labour on the international market and are forced to pay the going wage.

TABLE 12.2 Total and Skilled Employment and Vacancies, by Sector and Citizenship, April - May 1972

Sector	Total Employment	Skilled Employment			Vacancies in Skilled Jobs	Total Skilled Jobs (4)+(5)	Skill Intensity %(6) of (1)+(5)	Localisation Position %(2) of (4)
		Batswana	non-Batswana	Total				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Agriculture	5 058	279	125	404	33	437	8,6	69,1
Mining and Quarrying	1 680	105	178	283	18	301	17,7	37,1
Manufacturing	2 639	484	139	623	41	664	24,8	77,7
Construction	6 468	453	323	776	175	951	14,3	58,4
Commerce and Finance	6 342	1 062	260	1 322	89	1 411	21,9	80,3
Transport and Communications	1 122	61	155	216	28	244	21,2	28,2
Local Govt.	1 022	416	24	440	25	465	44,4	94,5
Education	3 360	2 349	545	2 894	209	3 103	86,9	81,2
Other Services	11 180	532	248	780	52	832	7,4	66,5
Central Govt.	9 168	4 552	493	5 045	1 308	6 353	60,6	90,2
Total	48 039	10 293	2 490	12 783	1 978	14 761	13,4	80,5

Source: Manpower and Employment in Botswana - extracted from Table 2.1

TABLE 12.3 Percentage Distribution of Workers With or Requiring Post-Primary Education or Training in Each Earning Range above R 150, by Citizenship and Sector, April/May 1972

Sector	Citizenship	R 151 to 200 %	R 201 to 250 %	R 251 to 300 %	R 301 to 400 %	R 401 to 500 %	R 500+ %	% earning above 150
Agriculture	Batswana	4,4	1,8	1,2	3,7	1,2	1,2	
	non-Batswana	12,6	9,8	7,0	7,0	1,4	1,4	
	TOTAL	6,9	4,3	3,0	4,7	1,3	1,3	21,5
Mining and Quarrying	Batswana	4,0	1,3	-	-	-	-	
	non-Batswana	6,3	7,5	6,3	31,6	27,8	18,9	
	TOTAL	5,1	4,5	3,2	16,2	14,2	9,7	52,9
Manufacturing	Batswana	3,0	1,4	1,6	0,8	0,4	0,2	
	non-Batswana	7,9	5,7	14,3	22,3	12,9	12,2	
	TOTAL	4,1	2,4	4,4	5,6	3,2	2,8	22,5
Construction	Batswana	2,8	1,5	0,8	0,4	-	-	
	non-Batswana	5,8	4,6	7,4	37,1	12,6	12,3	
	TOTAL	4,1	2,8	3,6	15,7	5,2	5,1	36,5
Commerce	Batswana	4,1	1,6	1,3	1,1	0,6	0,9	
	non-Batswana	13,5	8,4	8,0	11,8	8,4	9,7	
	TOTAL	6,0	3,0	2,6	3,2	2,1	2,6	19,5
Transport	Batswana	11,4	3,2	3,2	-	-	-	
	non-Batswana	8,3	3,8	16,1	42,5	15,4	3,8	
	TOTAL	9,2	3,7	12,5	30,5	11,1	2,7	69,7
Local Gvt.	Batswana	4,0	0,4	-	0,2	0,2	-	
	non-Batswana	25,0	-	4,1	4,1	4,1	8,3	
	TOTAL	5,2	0,4	0,2	0,4	0,4	0,4	7,0
Education	Batswana	0,5	0,2	0,1	0,1	-	-	
	non-Batswana	16,8	5,6	1,2	2,0	1,2	1,2	
	TOTAL	3,6	1,2	0,3	0,5	0,2	0,2	6,0
Other Services	Batswana	1,8	0,8	0,4	0,4	0,2	-	
	non-Batswana	6,9	6,9	12,2	9,1	10,9	11,7	
	TOTAL	3,6	2,7	4,1	3,1	3,6	3,7	20,8
Central Government	Batswana	2,6	2,3	0,5	0,7	0,5	0,2	
	non-Batswana	10,7	10,7	12,3	27,7	9,3	1,4	
	TOTAL	3,4	3,2	1,6	3,3	1,3	0,3	13,1
Total All Sectors	Batswana	2,5	1,6	0,6	0,7	0,4	0,2	
	non-Batswana	11,2	7,1	8,5	19,0	8,8	6,3	
	TOTAL	4,1	2,6	2,1	4,1	2,0	1,4	16,3

Source: Manpower and Employment in Botswana - extracted from Table D.8

Thus, the table above indicates that the mining sector pays a significant portion of its workforce a wage in excess of R 150 per month. The recipients of this high wage are predominantly expatriate. The majority of skilled Batswana are clustered at the lowest skill echelon and, in fact, are skilled by definition only, that is, they have received a small amount of post-primary education or training but occupy job categories that do not require significant specialised knowledge or experience. In fact, we note from Table 12.4 that although the average wage of skilled Batswana mine employees accords with the mean wage of all sectors, the mean wage of skilled non-Batswana mine employees is approximately 75 per cent in excess of the mean wage of all sectors, higher than any other sector of the economy. It is also important to note that Table 12.4 only refers to monthly salaries - it does not include bonuses, inducement allowances and the like, all of which make a substantial contribution to the earnings of non-Batswana mineworkers, in fact it is unofficially estimated that wages and salaries of non-Batswana mine employees constitute only 50 per cent of total earnings, and the other half of their earnings comprise bonuses and allowances which are not included in Table 12.4.

It is, in fact, interesting to note that the Manpower Report acknowledges that the heavy industry sectors, of which mining is the prime example, are particularly plagued by a shortage of skilled manpower but notes that it is in these sectors "... where the risks for salary increases of a magnitude in excess of those granted by Government are high, and they should be given first priority by the Government Staff Inspector/Job Analyst when he commences his duty in the private sector" (para 4.12).

TABLE 12.4 Workers With or Requiring Post-Primary Education and their Average Monthly Earnings in Rands - April/May 1972 - by Citizenship and Sector

Sector	Batswana		non-Batswana		
	Number	Mean Earnings	Number	Mean Earnings	Differential Batswana/ non-Batswana
Agriculture	103	105	53	174	1 : 1,7
Mining	75	70	79	460	1 : 6,6
Manufacturing	482	62	133	328	1 : 5,3
Construction	450	66	321	345	1 : 3,3
Commerce	900	81	218	270	1 : 3,3
Transport	59	96	151	320	1 : 4,2
Local Govt.	416	60	24	254	1 : 2,7
Education	1 647	46	383	124	1 : 6,7
Other Services	458	41	210	273	1 : 3,4
Central Govt.	4 552	74	493	249	1 : 5,2
Total All Sectors	9 142	67	2 065	262	1 : 3,9

Note: With the exception of the Central Government establishment the number of workers in the other sectors are incomplete totals. Table 2.1 of the Manpower Report in fact estimates that there are actually 105 Batswana and 178 non-Batswana in skilled employment in the mines. The differential in the other sectors is not as great.

Source: Manpower and Employment in Botswana.

No official attempt has been made to calculate the average wage of unskilled workers. Using data from several of the tables contained in the Manpower Report I have attempted to calculate the level of unskilled wages.

TABLE 12.5 Average Monthly Wages of Unskilled Workers: April/May 1972 - by Sector (Rand)

Sector	Total Unskilled Workers	Monthly Wage Bill Attributable to Unskilled	Average Monthly Wage/ Unskilled Worker
Agriculture	4 654	28 564	6
Mining	1 397	65 368	47
Manufacturing	2 016	62 176	31
Construction	5 692	258 247	45
Commerce	5 020	150 572	30
Transport	906	45 927	51
Local Govt.	582	4 389	8
Education	-	-	-
Other Services	10 600	52 389	5
Central Govt.	4 123	116 824	28
Total	36 990	784 461	22

Notes: 1 I have been unable to interpret the data on education for the purposes of this table.

2 The unskilled wages in agriculture, local government, and services, whilst still remaining lower than any other sector, will be increased somewhat by the addition of non-cash wages.

Sources: Calculated from Manpower and Employment in Botswana.

Whilst acknowledging the unreliable nature of the above table it does appear to confirm a trend, a trend similar to that prevailing at the higher level of skills, namely, that wages, at all levels of employment, in mining and transport, exceed those paid in other sectors of the economy.

There are several important factors prompting the mines to pay a relatively high unskilled wage rate, namely:

a) Competition from the South African mines. The Botswana mining companies are competing with the South African mining sector for their unskilled miners and, in order to maintain their labour force at a satisfactory level, they will have to pay a wage similar to that offered by the South African mines. Bear in mind that a considerable number of the unskilled mineworkers at Selebi-Pikwe will have had some experience on the South African mines and it is these experienced miners who the copper-nickel industry will attempt to attract.[2]

b) An attempt to stabilise their unskilled workforce. No official information on company policy as regards stabilisation is available. A senior official of BCL assured me that the company has experienced great difficulty in stabilising its workforce, that is, the unskilled workers retain strong links with traditional agriculture which presupposes that they spend some time in their tribal villages. The maintenance of their tribal links also ensures a form of old age pension. The mines' failure to provide a pension on retirement suggests that stabilisation of the workforce is not one of BCL's major priorities.

c) The mining companies, particularly the South African element, are unlikely to lay themselves open to a "starvation wage" charge. The Botswana Christian Council have attempted to draw up a Poverty Datum Line for Selebi-Pikwe - they estimate the poverty datum line to be R 39,68 for a family of five, the effective minimum level rising to R 59,98. The mines thus pay an

average unskilled wage in excess of the poverty datum line, although somewhat below the effective minimum level.

Thus, we can distinguish three categories of employees - the skilled non-Batswana, the skilled Batswana, and the unskilled workers. In the mining sector the wages of the skilled non-Batswana are considerably higher than those available in any other sector. The skilled Batswana mine employees receive an average wage slightly higher than the national average and somewhat lower than the transport and commercial sector. The unskilled mineworkers' average wage is considerably higher than the national average but is similar to the unskilled wage level prevailing in the transport and construction sectors.[3] It has been shown that the high wages offered by the mining company to both skilled and unskilled workers is easily explained from the company's point of view.

I do not, at this stage, wish to debate the pros and cons of a high wage economy in which the national income is unevenly distributed. The two major arguments against a high wage mining sector in Botswana are, firstly, that it might exacerbate an already uneven distribution of income. It might give rise to a significant differential between skilled and unskilled workers and between high level skills and the more rudimentary skills, concentrating income in the hands of a few expatriates. It might also widen the rural-urban earnings differential.

The second argument is related to the first. It asserts that the high wages offered in the mining sector will exert an upward pressure on the general wage level. As early as 1970 Jackson warned that,

> "... a high level of wages in mining could easily become a further focal point for local wage demands and thus permanently disrupt the wages structure of Botswana in the way that has occurred in many other underdeveloped countries" (p. 562).

This warning has been reiterated by Landell-Mills and, in a more general sense, by Ghai and the Botswana Government. A similar view is expressed by some of the entrepreneurs interviewed by Selwyn.

On the other hand, it might be argued that a high wage mining sector will stimulate domestic savings and release funds for reinvestment in the Botswana economy. It might also stimulate consumption of locally produced goods.

These arguments will be examined at a later stage.

3) Locals and Expatriates on the Mines

The analysis thus far brings to the fore the important distinction between Batswana and expatriate mine employees. We see that although the mining sector accounts for a relatively small proportion of total skilled employment a large proportion of these skilled mining employees are expatriates earning a wage in excess of R 150 per month. Thus the considerable divergence between the wages of skilled Batswana and non-Batswana is attributable largely to the mines need for high-level manpower and consequent reliance on expatriate labour. Thus, to reiterate, one of the essential problems facing the Botswana planners is the simultaneous occurrence of widespread unemployment in the country as a whole coupled with the employment of a large proportion of expatriates in her most important industry. This gives rise to the divergence in wage rates

between the highly skilled and less skilled employees. These problems - expatriate employment and high wages - are closely interrelated and must be met by interdependent policy measures. The government has responded to these problems by the enunciation of a localisation programme and a wages and incomes policy.

a) Localisation

The Botswana authorities have a long standing commitment to localisation of employment and, although official activity regarding localisation has concentrated almost exclusively upon the Civil Service, the question of expatriate employment in private enterprise has not been ignored. Section III of the Mines and Minerals Act provides that the President may prohibit the employment of non-citizens in mining operations. It also provides that the Minister may demand from the holder of a mining right a sum sufficient to cover the cost of repatriation of expatriate employees.

The mining companies have explicitly recognised the localisation priority and Clause 11 (b) of the Master Agreement provides that,

> "BRST, the Company (BCL) and BCL (Sales) recognise that it is the objective of the Government to attain national self-sufficiency in high level manpower by 1990. BRST (insofar as it has operations in Botswana), the Company, and BCL (Sales) undertake to endeavour to employ only citizens of Botswana at all levels of responsibility by such date subject always to observing good management practice."

It appears that the mining companies are sincerely attempting to localise their workforce. BCL has

submitted a detailed training programme to the Labour Commissioner outlining its localisation programme. But, sincerity notwithstanding, the capital intensive techniques employed by the mining sector necessitating a significant cadre of high level manpower might render rapid localisation incompatible with "good management practice". Localisation of the Central Government establishment has proceeded apace but, as indicated by Table 12.2, the private sector, particularly mining, has lagged behind.

Obviously, in the long run, the only way in which localisation can be ensured is by the improvement of the education system, detailed analysis of which is beyond the scope of this paper. The private sector will have to assist in this regard. It is, at this stage, impossible to assess the contribution made by the mining companies to raising the general level of skills. Bare statistics are not very revealing. They reveal that in 1972 25 employees of the mining sector were receiving training in one form or another, seven of whom were, somewhat inexplicably, non-Batswana. Thus, approximately 30 per cent of total skilled workers in the mining sector are receiving some form of training, which is somewhat lower than the average for the private sector. But obviously the mining sector's contribution to the level of skills does extend somewhat beyond what the statistics suggest, although there is no evidence indicating that the mining sector's contribution is any more significant than that of any other sector. The government has attempted to encourage the provision of skills by the private sector. Section 41 (1) of the Income Tax Act provides that 125 per cent of any expenditure incurred by a company

registered in Botswana on "approved education" (that is, excluding primary and secondary education) or training of a Botswana citizen may be deducted from taxable income. 125 per cent of the cost of employment of an approved training officer may also be deducted from the company's tax base. BCL has, to some extent, taken advantage of this offer - it pays for the training of workers bonded to it, it has employed a training officer who provides limited classroom training in certain skills, and, though not tax deductible, it finances one of the primary schools in Selebi-Pikwe. Informal on-the-job training is also provided. It is interesting to note that the mining company will raise the skill level of those workers already in possession of some training or experience. It will not, as in most other LDC's, necessarily raise the skill level of the Batswana miners. Industrial development in a LDC usually implies that totally unskilled rural peasants are employed on jobs which, although formally designated as unskilled, do involve some form of training, albeit informal, on-the-job training. In Botswana this is not likely to be the case in so far as most of the unskilled miners will have done at least one stint on the South African mines and their skill level will not be raised by employment at Selebi-Pikwe.

One of the major recommendations of the Manpower Report suggests that the rate of growth of the government sector be decreased and/or that the government relax its practice of bonding trainees and university graduates and so release a larger supply of educated and trained workers to the private sector. They rationalise this suggestion by pointing out that in so far as the skill

intensity of the private sector is lower than that of the government sector the opportunity cost (in terms of unskilled employment opportunities foregone) of skilled employment in the Central Government is likely to be high. This is, however, a particularly weak argument - the skill requirements of the private sector, and particularly the mining sector, differ greatly from the skill requirements of the Central Government. The opportunity cost of employing skilled and educated employees in the Central Government as opposed to the mining sector is thus not likely be as high as the respective skill intensities suggest. Rather than releasing skilled employees to the private, particularly the mining, sector, the government should concentrate on encouraging or even compelling the mining companies to train, at their expense, Botswana citizens to satisfy all their skill requirements.

Finally, the Botswana authorities may enforce localisation in so far as the employment of an expatriate must be sanctioned by the Department of Labour. If the authorities are of the opinion that the post for which an expatriate permit is required may be filled by a Motswana it will not issue the required permit. Permits of this nature are only granted for a maximum number of years and if a company requires renewal of any particular permit the government may refuse renewal on the grounds that the company could, in the invervenings years, have trained a Motswana to occupy the post.

b) Wages and Incomes Policy

Localisation of expatriate held posts will, by definition, raise the level of local participation in the economy. It is also a necessary condition for narrowing the earnings differential between highly skilled

and unskilled employees. It is, however, not a sufficient condition for achieving the latter objective, for if Botswana citizens are substituted for expatriates at the prevailing wage levels the expatriate elite will merely be transformed into a national elite. In recognition of the need for a low wage economy the Botswana government acquired the services of a consultant, Professor D. P. Ghai, whose report led to the formulation of a national incomes policy.[4]

Most of the debate concerning the desirability or otherwise of a low wage economy revolves around the question of income distribution and is dealt with in chapter 14. This section is concerned with the incomes policy of the Botswana Government. It is, however, not possible to assess policy measures without an understanding of the desired goals. Therefore, without wishing to anticipate forthcoming discussion, it should be noted that chapter 14 will argue in favour of a low wage economy - it will be argued that the reinvestment potential of a surplus extracted in the form of higher wages is low, that consumption of locally produced commodities is not stimulated significantly by the creation of a national elite, and that a high wage mining sector will force up the national wage level.

In so far as the arguments against high wages do not imply a reduction in pre-tax personal income levels but rather a reduction in disposable income the economy's needs might be accomodated by a highly progressive personal income tax. In Botswana personal income is taxed at progressive rates as stipulated by the Tenth Schedule of the Income Tax Act, 1973. Non-residents are taxed at a flat rate of 20 per cent although it appears that most of the expatriate mine employees will

be subject to resident rates. The wages of the expatriate employees do not, however, comprise their total income which is supplemented by various inducement allowances. Certain of these are taxable - bonuses are taxable but it appears that gratuities are exempt from income taxation. The taxation rates on these allowances are generally somewhat lower than those applicable to other sources of income.

Reduction of retained income does not reduce the potentially inflationary consequences of a high wage economy. If Botswana is to encourage export of manufactured commodities it cannot afford to allow the price of its exportables to be increased by a high wage bill. It will be relatively easy for the mining companies to bear the burden of a high wage bill, but it is not reasonable to expect small scale manufacturing industry, the growth of which is one of the major priorities of the planners, to bear the burden of a similarly high wage bill. The Manpower Report bases its projections of skilled manpower employment in the mining and manufacturing sectors upon an estimated price elasticity of demand of 0,1. Whilst this estimate appears to be reasonable in the case of the mining sector it cannot be applied to the nascent manufacturing sector, where the price elasticity of demand for skilled labour is likely to be closer to, or greater than, unity rather then zero.[5] Thus a high wage rate in the mining sector might retard the growth of output and employment in the manufacturing sector.

Moreover, and to touch briefly upon the question of distribution, it is reasonable to expect a high degree of tax illusion to exist and it will be extremely difficult to convince the less skilled Batswana workers

that inequality has been reduced by taxation when pre-tax rates continue to exhibit a significant divergence. As regards the divergence between the earnings of the unskilled urban worker and his rural counterpart, the difficulty in communicating the effects of an income equalising tax to the rural peasants is likely to be even greater and is unlikely to prevent migration from the rural to the urban areas. Inequality must, as it were, not only be reduced, it must also be seen to be reduced.

The alternative available to the authorities is a ceiling on wage rates or on the rate of increase of wages coupled, of course, with similar restrictions on profits and prices. In the case of skilled employment the government explicitly recognises that, because Botswana will have to rely on expatriate skills for some time to come, total earnings per skilled worker will be high. If, in the event of localisation, a citizen is substituted for an expatriate at the prevailing wage the objective of wage restraint will not have been achieved. In an attempt to solve this problem the government have stipulated that wages and salaries offered by the private sector may not significantly exceed those paid for similar categories of employment in the public sector. In fact, a recent amendment to the Regulation of Wages and Conditions of Employment Act provides that the Minister is empowered to specify maximum wage rates for defined categories. The government have published guidelines to which the private sector is expected to adhere. The authorities do, however, recognise the need for various inducement allowances in the case of skilled expatriate employees but stipulate that these additional allowances must be clearly distinguished from the basic wage and must, as far as

possible, be paid on thetermination of the expatriates' contract. The Ministry of Finance and Development Planning estimates that wages and salries paid to expatriate mining employees comprise only 50 per cent of total expatriate earnings. When any skilled job is localised the Motswana will receive the wage previously paid to the expatriate but will not receive any of the inducement allowances.

Without a minute breakdown of job categories it is impossible to assess whether or not the mining companies are adhering to the government guidelines. We have seen how the average skilled wage in the mining sector far exceeds that of the government sector although this might, and to a certain extent will, stem from the mining sector's relatively heavy reliance upon a relatively large cadre of high level manpower. However, several factors lead one to suspect that the average wage per job category in the mining sector exceeds that offered by the central government. An average monthly wage of R 460 per skilled expatriate worker (see Table 12.4) means that on average the expatriate mineworkers occupy positions which are equivalent to the "superscale" category in government - in government the employees in this category are defined as "Permanent Secretaries of Ministries and Heads and Assistant Heads of Departments who are responsible for the overall administration of their ministeries and departments and are involved in policy-making and implementation at the highest level". In fact, the salaries of 37 skilled employees in the mining sector (that is, 23,9 per cent of total skilled mining employment) are the same or exceed the upper limit of the highest grade in the civil service. If the wage rates of skilled employees on the mines are found to exceed those of the government sector the only

possible remedy is an absolute reduction of the wages in those categories of employment where the mining sector and civil service wages diverge. I do not suggest that the earnings of expatriates be reduced, but merely that the wage and salary component is reduced accompanied by an increase in the non-wage component, thus reducing the earnings of the Batswana replacements when the jobs in question are localised. This will, of course, involve some political risk but it will be easier to effect when the jobs are in expatriate hands than at a later stage when they have already been localised.[6]

As regards unskilled wages, official policy recommends that the average earnings available in the rural sector plus a certain allowance for the higher cost of living in the urban areas must set the average unskilled urban wage rate. It is difficult to assess on this basis, whether unskilled wages in the mining sector exceed those of the rural areas although if the Central Government is to be used as a guideline it appears that the mines do pay more than the suggested ceiling. In 1970 Landell-Mills suggested that if rural earnings were to set urban wages an average monthly urban wage of approximately R 14 would be appropriate. It will, in any event, be difficult to reduce the wages of the unskilled miners although the rate of increase of unskilled wages might be slowed down. The mining companies are unlikely to permit the wages of the unskilled miners to drop below the wage level prevailing in South Africa even though it might be in the interests of the Botswana economy to encourage a differential of this nature.

The success of the incomes policy is strongly dependent upon two important considerations. Firstly, as I shall point out later, the reinvestment coefficient of the mining companies is not likely to be very high and the government must ensure that the company does not receive the fruits of this depressed wage level. The government has indicated that it is aware of this but asserts that,

> "Since Botswana depends on attracting foreign private investment the Government must be, and is, prepared to permit investors to obtain competitive profits related to international norms. The extent to which profits may be retained by an investor is determined by the level and structure of taxation..." (National Development Plan, 1973 - 78, para 3.42).[7]

The tax structure is discussed below.

Secondly, in order to enforce a low-wage policy the government will have to establish its bona fides and its credibility will be severely eroded by the substantial wage increases which will be granted to civil servants later on in the year. This move stands in complete contradiction to stated policy and, whilst it might not actually raise wage levels on the mines, it severely limits the possibility of an absolute reduction in certain of the salary levels prevailing in the mining sector. Competition on the labour market between the Central Government and the mining sector has been unofficially cited as a cause of this wage increase which, of course, supports the argument that Botswana's mining sector, like that of many other LDCs, is acting as a wage leader.[8] One cannot overemphasise the danger of this situation - the mining companies are able to sustain a wage level far in excess of that

of the rest of the economy and even if a wage increase does not constrain the growth of the Central Government establishment it will act as a significant constraint on the development of the manufacturing sector. If, at this early stage, the government response to competition from the mining sector is to increase the level of wages one cannot hold out much hope for the maintenance of a low wage economy.

4) Worker Organisation

Whilst the Botswana government has taken steps to encourage the growth of worker organisation - for example, legislation stipulates that a union is only required to represent 25 per cent of the eligible workforce in order to gain recognition - it nevertheless appears to exercise firm control over union activities and leadership.

There are two primary reasons why the government would wish to exercise control over union activities. Firstly, it appears that most of the opposition to the government is centred in the urban areas, particularly Francistown. In the early and mid 'sixties the unions constituted an important power base for the Botswana Peoples Party and, for this reason alone, the government would wish to supervise the activities of the unions particularly in a new urban area like Selebi-Pikwe.

Secondly, the unions may act as an added upward pressure on the wage level. The unions' power in this sphere is severely circumscribed by the large number of unemployed (see chapter 2), but it is possible that the mining companies, when confronted with the possibility of labour unrest, will attempt to purchase industrial peace by raising the wage rate.

The mining company entered into a recognition agreement with the Botswana Mineworkers'Union in July 1973. I have not been able to acquire a copy of the signed agreement although the draft agreement put forward by the company serves to indicate its attitude towards worker organisation. There are two noteworthy clauses in the draft agreement. Firstly, the recognition clause (clause 1) coupled with the job classification schedule effectively stipulates that only unskilled workers may belong to the union - first line supervisors are excluded. This clause has been criticised because it effectively bars from union membership the educated workers who will have had some previous experience in union activities. Also the company might use promotion as a means of curtailing the activities of a union member.

Clause 2 (b) of the agreement provides that "the Company will not be obliged to meet the Union to discuss any question concerning the engagement or promotion of any person employed by the Company, whether such person is a member of the union or not, or any other matter within the prerogative of Management". This clause speaks for itself - it weakens the power of the union very considerably, and certainly appears to prohibit the closed shop. Moreover, it prevents the union from assisting government in its attempts to enforce localisation.

It is unlikely that the union will exercise an important influence on company or government labour policy - its activities are restricted, for better or for worse, by the government. In addition it appears that company is extremely wary of the prospect of being confronted by an organised labour force, and the conditions prevailing in Botswana's labour market weaken the union's potential impact.

The only significant labour-management clash that has occurred at Selebi-Pikwe, took place in late 1973 and appeared to centre on the activities of a Motswana personnel manager who was alleged to be discriminating in favour of the members of his tribe. This gave rise to a strike at the mine and to quite militant action on the part of the mineworkers. It appears that the strike was supported by the union (although it was not at the time formally recognised) but it is not certain whether the union actually initiated the strike. The dispute was settled when the personnel officer in question was dismissed.

12.3 Linkages and Infrastructure

The attitude of the Botswana planners towards the possibility of the Selebi-Pikwe project generating linkages (which they loosely refer to as "indirect benefits") appears to be somewhat ambiguous. The 1973 - 1978 National Development Plan notes that,

> "Mining, because it is a capital intensive and technologically sophisticated industry, is an enclave activity which in the absence of secondary and service industries, has a minimal impact on the rest of the economy." (para 3.26)

This view is supported by the observation that,

> "Botswana has inherited an economic structure which has few internal linkages; hence the creation of a mining industry and the development of the livestock industry do not automatically lead to any substantial income streams in the other sectors of the economy." (para 8.3)

These assertions are contradicted somewhat by the following statement:

> "The development of mineral deposits is bringing about a transformation in the Botswana economy and providing the stimulus for rapid industrial and commercial development. The diamond mine at Orapa is of necessity an enclave development, which will induce little further development ... The copper-nickel mine at Selebi-Pikwe, on the other hand, will form a focus for secondary and tertiary development not only in the intermediate area, but in the region as a whole." (para 12.16)

a) Backward Linkages

The 1970 - 1975 National Development Plan asserts that,

> "... with the advent of mining industries in Botswana it is considered that many link industries can now be successfully established. Firstly, during the construction stage and thereafter, there will be a significant demand for paint, furniture, nails, concrete products and other inputs for the building industry. Secondly, once established the mines will provide a steady demand for many goods produced locally such as protective clothing and foundry and sheet metal work." (para 6.7)

Moreover, the mining companies have agreed that they will procure supplies from Botswana suppliers always provided that "... such materials are not less favourable in price, quality and delivery dates than materials and products from foreign sources" (Master Agreement, Clause 11). The 1971/72 National Accounts value the intermediate consumption of the mining sector at R 5,5 million and by 1977/78 intermediate consumption of Selebi-Pikwe is expected to total R 8 million. The Botswana planners have not attempted to distinguish between imported and locally purchased inputs. Private, as yet unpublished, research undertaken in Swaziland indicates that the value of locally produced inputs for the iron ore and asbestos mines is negligible. Killick's study of the Sierra Leone

diamond mines revealed that approximately 34 per cent of the inputs required for the diamond mining industry were purchased domestically. There is, however, no sound reason why either of these should necessarily reflect the situation prevailing in Botswana, although there is, of course, reason for believing that the Swaziland situation might be a reasonable indication of the state of affairs prevailing in Botswana. I will not attempt, however, to measure statistically the value of locally purchased intermediates but will rather attempt to identify the possibility of backward linkages being generated by the mining sector in Botswana.

The 1970 - 75 National Development Plan envisages that the mining industry will generate significant activity in the construction industry. There can be little doubt that the rapid growth of the construction industry in the early 'seventies is largely attributable to the development of the mining sector. It has been noted above that between 1966/67 and 1972 employment in the construction industry rose by some 400 per cent and the contribution to GDP rose from 5,4 per cent in 1966/67 to 10,7 per cent in 1971/72. The rapid growth of the construction industry is not to be ignored despite the fact that the growth will not be sustained after the construction phase of the mines. Nevertheless to assert that the mining sector, via the impetus it provides to construction, will necessarily generate demand for domestically produced inputs like paint, nails and concrete, is invalid - the 1971/72 National Accounts estimate that intermediate consumption by the construction industry totalled R 10,1 million (and value of output R 18,7 million). Once again no breakdown is provided as between locally produced and imported inputs but there is no a priori reason for expecting the required inputs to be produced locally, because any

local producer will have to compete with the large scale, well established South African producers whose relatively large domestic market will permit the attainment of scale economies. The cement industry is a case in point - a consultants' report recently submitted to the Botswana Development Corporation rejects the possibility of establishing a cement industry because of the scale economies which would have to be attained to justify an undertaking of that nature. Similar constraints would apply to the other construction inputs.

Inputs more specific to the mining industry - protective clothing being a good example - will meet with competition from the well established suppliers to the South African mining sector.

As noted above the new Customs Union agreement does offer a limited degree of protection to infant industries in the Southern African periphery (see chapter 2). For the most part, however, it appears unreasonable to expect Botswana to develop an import substituting industry whcih will be competitive with the large South African producers. In effect I am suggesting that the infant industry argument does not in general apply to Botswana and, more particularly, is certainly not applicable in the case of industries designed to provide inputs for the mining sector - the cost structure of a Botswana import substituting industry is likely to remain higher than that of its South African competitor even after an eight year period of protection. A possible solution of this impasse would be to establish the desired industry under the cloak of a protective tariff and then stipulate that the mining industry continue supporting the domestic producer after the tariff barrier has been lifted even if

the price on the South African market is lower. A stipulation of this nature might be tantamount to the imposition of a quota and, as such, would contravene Article 2 of the Customs Union Agreement.

The development of the coal mine at Morupule is probably the most significant backward linkage generated by the copper-nickel industry. The quality of the coal mined at Morupule is of a particularly low grade although preliminary testing indicated that it was combustible and could therefore be used for power generation. Possible alternatives were importing power from South Africa or importing coal from South Africa or Rhodesia. The latter alternative was analysed by the consultants, Gibb and Partners, and rejected apparently on economic grounds. It is, however, unlikely that the former alternative (namely, the import of power from South Africa) is in fact more expensive although it does not accord with Botswana's objective of lessening her dependence on South Africa. It was therefore agreed that Morupule Collieries Limited, a member of the Anglo American Group, would mine the coal deposits despite the fact that the power requirements of the Selebi-Pikwe project would constitute the only source of demand for the output of the Morupule Mine. The mine employs approximately fifty people and contributes in the usual manner to government revenue. Most importantly it provides Botswana with an independent source of power. There has, however, been one important problem, namely that the Morupule coal, though combustible during testing, has not been combustible in the power plant because of a fault in the design of the power units bodies. Thus Botswana is still compelled to rely on imported coal. The design of the boilerswill be modified to accommodate the characteristics of Morupule coal,

although at some considerable cost, unofficially estimated at R 4,5 million. It is not at this stage clear who will pay for these modifications.

We can dismiss the possibility of the mining sector encouraging the formation of a capital goods sector supplying the heavy industrial equipment to the mining sector. The polarisation factor outlined above is likely to be particularly relevant to the case of heavy industry - it is not reasonable to expect a Botswana capital goods producer to achieve the scale economies attained by South African and international producers. The purchase of the capital goods required for the infrastructure is generally subject to conditions stipulated by the loan agreements and even the mining company itself is bound to purchase a stipulated portion of its requirements in South Africa.[9] Furthermore, Anglo American's industrial interests and both Anglo and Amax's substantial interests in copper mining in Zambia and South Africa lead one to expect that it would be contrary to their interests to support a domestic capital goods producer.

The other possible linkage relates to the extent to which the mining sector will stimulate the demand for consumer goods and therefore investment in the production of those goods. This question will be examined in chapter 14. In so far as a large portion of the BCL monthly wage bill is attributable to a high wage expatriate workforce, demand for domestically produced goods will not be significantly stimulated. Those consumer goods produced in Botswana which have, at high levels of income, a positive income elasticity of demand are

essentially aimed at the tourist trade. The cheap furniture, textiles, and even foodstuffs which might be produced in Botswana will, at high levels of income, have an extremely low income elasticity of demand, possibly even a zero or negative elasticity. The demand for these goods will probably be stimulated by the wages paid to the lower income unskilled workers employed on the mines.but even in the case of cheap consumer goods Botswana producers will face considerable competition from South African producers. Furthermore in the case of cheap consumer goods transport costs are of crucial importance. Unsatisfactory road conditions in Botswana might well ensure that it is cheaper to transport goods from South Africa or Rhodesia than from Gaborone, although Selebi-Pikwe's position on the railway line and the proximity of Francistown is not likely to render transport costs prohibitive. The possibility of the town of Selebi-Pikwe itself becoming a centre of secondary industrial activity is severely constrained by a shortage of water. These problems notwithstanding the possibility of encouraging the formation of consumer good industries is slightly strengthened by Clause 6 of the Customs Union agreement permitting protection of infant industries.

The population of Selebi-Pikwe could provide significant linkages to the rural sector, particularly to the neighbouring villages of Mmadinari, Palapye and even Serowe. Obviously in many instances the quality of the product will have to be upgraded but the situation prevailing in Pikwe does not provide much room for optimism. Milk is imported from Bulawayo, despite the fact that there is a well-established village, Mmadinari, several miles

away which, with an organised marketing scheme, could conceivably produce sufficient milk for the requirements of Pikwe. The sale of fresh vegetables is controlled by large retailers who generally purchase their requirements from South African and Rhodesia.[10] Recently the Serowe Brigades have established a market place in Pikwe which will undoubtedly generate additional linkages with the rural sector.[11] The question of rural sector linkages will be discussed in greater detail in chapter 14.

On the whole backward linkages stemming from mining are likely to be insiginificant. The capital intensive nature of the mining industry, Anglo and Amax's industrial and copper mining activities in South Africa and Zambia, and, most important, the existence of well established South African producers will inhibit local production of both capital goods and the lower priced requirements for the mining and construction industries. To date the only significant backward linkage is Morupule Colliery, although the Botswana Development Corporation in partnership with British Oxygen intends establishing a small industrial gas plant with a capital investment of approximately R 200 000 in Pikwe.

b) Forward Linkages

The ore extracted at Selebi-Pikwe is processed at the mine by means of a highly sophisticated flash smelter process developed in Finland. The matte is then shipped to the United States where it is toll refined at Amax's plant at Port Nickel, Louisiana.

There are several factors which strongly militate against the establishment of a refining plant in Botswana.

Firstly, the output of Selebi-Pikwe is very small in relation to the output of the other major copper producing countries. If Selkirk-Phoenix and Matsitama are exploited total output will increase quite considerably but, even then, it is unlikely that Botswana's relatively small deposits will warrant the establishment of a local refining plant particularly when one considers the proximity of well established refining plants in Zambia and South Africa. Furthermore, the estimated life of the project is short and this will also discourage domestic refining. The lack of refining capacity also decreases the likelihood of nationalisation.

Secondly, copper, and particularly nickel, refining is a highly capital intensive process. Employment creation is likely to be small and highly skill intensive. Botswana, in fact, offers no locational attractions as regards refining, with, of course, the exception of lowered transport costs.

Thirdly, the goals of the firms involved in the Selebi-Pikwe project, particularly Amax, militate against the establishment of a local refinery. One of Amax's primary motives for investing in Selebi-Pikwe is that its Port Nickel refining plant is operating at below capacity. The output of the Botswana mine is thus an important cost reducing factor at Amax's refinery.

The possibility of establishing domestic refining capacity is, at best, highly unlikely. The Government has expressed the hope that the added output of Matsitama and Selkirk-Phoenix might justify the establishment of a local refinery. Amax has negotiated a fifteen year contract for the refining of the Selebi-Pikwe matte, although, in the event of domestic refining becoming feasible, the Government would undoubtedly consider renegotiating the contract.

Apart from the processing and refining of the copper-nickel ore, another possible forward linkage stems from the large sulphur byproduct of the flash smelter process. Most of the sulphur output is to be sold to a South African fertiliser firm, Triomf Fertilisers. Sulphur is an important element in the production of certain fertilisers and it might be put to effective use by a local producer. Once again one expects that the government would renegoitiate the Triomf contract if the establishment of a small chemical or fertiliser plant were to become a viable proposition.

Ultimately however, it is difficult to disagree with a conclusion Selwyn draws from his study of industrial development in Botswana, Lesotho and Swaziland, namely, that

> "... very few of the firms engaged in resource based industries would take the process a single stage further locally than they were compelled to by the nature of the product or by government intervention. Many of the enterprises were controlled by groups whose only interest in the peripheral country was as a source of the material, and which would not of their own volition choose these countries as a location for any other activity." (p. 152)

c) Infrastructure[12] (Map D)

The Selebi-Pikwe project has necessitated the development of large scale infrastructure, the cost of which has been met by loans raised by the Botswana government from various international aid bodies. The mining company has not been responsible for the provision of any of the infrastructural requirements other than sharing in the cost of the development of the township. The major facilities required by the mining project are water,

power, transport, and the township. The provision of facilities of this nature in a country sorely lacking in these basic necessities might provide a stimulus to the development of both the agricultural and industrial sectors.

Administrative and Financial Arrangements

The United Nations Development Programme (UNDP) provided the funds for the original feasability study and appointed the World Bank as the executive agency. Sir Alexander Gibb and Partners were appointed as the consultants and were instructed to assess the feasability of alternative means of providing the water, power and transport facilities. It was specifically provided that Gibb and Partners should bear in mind the needs of nearby consumers in their assessment. The ODM (the British Ministry for Overseas Development) assumed responsibility for assessing the requirements of the township. The entire project is known as the Shashe Project and administration of the project was in the hands of the Shashe Project Management Unit, an arm of the Ministry of Finance and Development Planning. Upon completion, the project was handed over to the relevant para-statal bodies.

Cost estimates of the project have varied considerably since the original feasability studies were undertaken. The latest estimate to hand (July 1973) is R 55 102 000, although the most recent detailed cost statements (31st December 1972) estimate the cost of the project at R 60 575 000. Table 12.6 provides a breakdown of the project and also gives some indication of the fluctuations in the cost estimates.

TABLE 12.6 Shashe Project Cost Estimate 31st December 1972 (R '000)

	Original Project Cost Estimate			Total Current Estimate		
	LC	FC	Total	LC	FC	Total
A. Power Facilities	2 048	14 690	16 738	6 260	17 644	23 904
B. Water Facilities	3 040	9 132	12 172	6 327	7 044	13 371
C. Roads and Railway	947	2 356	3 303	3 409	771	4 180
D. Township	2 311	3 333	5 644	6 337	963	7 300
E. Engineering and Administration	1 000	2 510	3 510	2 132	3 042	5 174
F. Interest		4 259	4 259		3 793	3 793
G. Preliminary and Other	1 146	1 336	2 482	1 423	1 430	2 853
Total	10 492	37 616	48 108	25 888	34 687	60 575

LC = payments in local currency; FC = payments in foreign currencies.

Source: Shashe Project Management Unit; Quarterly Report 31st December 1972.

The major sources of finance are the World Bank (IBRD), the Canadian International Development Agency (CIDA), and the US Agency for International Development (USAID).

The World Bank loan of $ 32 000 000 covers various aspects of the project although a large portion of the loan (approximately 29 per cent) is earmarked for the provision of water facilities. It is apparently the first time that the World Bank has lent a sum of money in excess of the value of the recipient's gross domestic product. The loan is repayable over a period of twenty five years at

7¼ per cent per annum. The loan is guaranteed by BCL, BRST, Anglo/Charter, Amax and Metallgesellschaft. The World Bank shares in a hypothec over the mining lease and holds mortgage bonds over company housing in Selebi-Pikwe.

CIDA has provided a C$ 30 000 000 interest free loan repayable over fifty years including a ten year grace period. The loan is earmarked for the provision of power facilities.

TABLE 12.7 Project Sources of Funds 31st December 1972 (R '000)

Sources	Total Amount Available
Specific Grants-in-Aid	
United Kingdom	458
UNDP	209
Canadian Technical Aid	478
TOTAL	1 145
Government Budgetary Funds	
Government Costs of Temporary Water	20
Government Staff Seconded to Project	103
Customs Duties	464
Charges on Bridging Finance	150
TOTAL	737
Borrowings	
United Kingdom - Temporary Water	364
IDA Credit - Design	1 247
CIDA	23 904
IBRD Loan	25 098
US AID	5 366
TOTAL	55 979
TOTAL of SOURCE of FUNDS	57 861

Source: Shashe Project Management Unit; Quarterly Report 31st December 1972.

The US AID's loan of $ 6 732 000 is repayable over forty years, including a ten year grace period. Interest on the AID loan is at 2 per cent per annum during the grace period and 3 per cent per annum thereafter. The loan is earmarked for the construction of the main water pipeline, and also for the payment of capitalised interest during the construction period. US AID also provided $ 2,5 million for the engineering design and certain preliminary works, $ 910 000 of which has been refunded from the World Bank loan. Both the Canadian and United States loans are unsecured.

Power

Responsibility for the provision of the power facilities has been undertaken by CIDA who have lent Botswana $ 30 000 000 for this purpose. The loan agreement was signed in 1970 and, in the same year, the Botswana Power Corporation which is responsible for the administration of the power plant, was established.

Before the construction of the Shashe River power unit the power resources were located in the Gaborone-Lobatsi area which could cater for a maximum demand of 2 300 kilowatts per day and in the Francistown area with a maximum possible output of 400 kilowatts per day. The mine and the processing plant alone (that is, excluding the township requirements) were expected to use approximately 29 000 kilowatts per day thus necessitating the construction of a completely new power unit. As stated above the Government was faced with choice of importing coal from Rhodesia or South Africa, importing power from South Africa, or using the Morupule coal resources. The latter alternative was adopted. Thus with coal from

Morupule and water from the dam on the Shashe River the power station itself might have been located at any one of the three sites, namely, the Morupule Colliery, the Shashe Dam, or at Selebi-Pikwe itself, the significant cost factors influencing the choice being the cost of pumping the water, transmitting the power, and transporting the coal. Once all these factor were weighed up the Selebi-Pikwe site was chosen.[13]

CIDA then undertook to construct a 60 megawatt thermal power station at Selebi-Pikwe plus an 11 kilowatt transmission line from the power station to the township and a 66 kilowatt line to the Shashe Dam pumping station and Francistown.

The construction of the power station has been fraught with controversy. A condition of the CIDA loan was that Canadian firms using Canadian equipment construct the plant. A blueprint for the construction of a power plant had been drawn up several years earlier by a British firm and, with several minor adjustments, the Canadian contractors constructed the plant according to these specifications. The Shashe plant and all its components were of a considerably smaller scale than those normally constructed by the Canadian firms involved in the project with the result that the Botswana project constituted a special case for most of these firms - parts had to be constructed specifically for the Botswana project. The upshot of all this was the use of highly sophisticated technology and expensive Canadian manpower and materials - these factors combined with special nature of the Shashe unit have resulted in, what is reputed to be, the most costly power station per megawatt in the world. Added to this is the fact that the boilers do not suit the

characteristics of the Morupule coal and Botswana will have to continue importing coal from South Africa until the power unit is modified.

The power plant is administered and operated by the Botswana Power Corporation, a statutory body, whose major activity is the management of the Shashe Power unit. Canada is providing technical assistance although schemes have been initiated to train local personnel to man the power installations.

It is the Botswana government's intention that all the infrastructural projects should be self financing in so far as the returns should meet the debt serving obligation and recurrent expenditure. To this end the Botswana Power Corporation has entered into a 35 year agreement with BCL in terms of which the company agrees to pay minimum charges sufficient to cover the debt servicing obligation and a portion of the operating costs.

Water

The water facilities, consist of the Shashe Dam the total length of which is 3 000 metres with a maximum height of 25 metres; an eighty kilometre buried pipeline; a plant at Shashe for preliminary treatment and pumping of water; service reservoirs at Selebi-Pikwe and a full treatment plant for township supplies. As at the 31st December 1972 the estimated cost of the water facilities was R 13 371 000 the bulk of which has been provided for from the World Bank loan. The contractors are largely of British and Canadian origin.

The mine and plant alone were expected to consume 20 million litres per day rising with the expansion of the town. Water demands from Francistown and Morupule were also to be catered for.

Two possible locations for the dam were the Shashe and Tobane sites on the Shashe and Matloutse Rivers respectively, the latter being nearer the mine but considerably further from Francistown. It appears, however, that because of unreliable rainfall in the Tobane catchment area, the Shashe site was the only really viable location although because of the distance of the Shashi site from Selebi-Pikwe temporary water supplies for the town had to be provided by sinking boreholes. The water supply has been the cause of considerable concern. The original estimates were found to fall seriously short of actual requirements, the rainfall in the initial period proved disappointing, and the saltation rate of the Shashe Dam has proved considerably higher than was at first expected, although many of these problems have been somewhat alleviated by the excellent rainfall of the 1974 season.

The possibility of diverting water from the Shashe Dam for use in a small irrigation scheme was mooted but rejected, on the grounds that the poor soil in the area did not warrant the use of scarce water resources. This argument appears highly suspect when one considers that one important reason for the poor quality of much of the soil in Botswana is the lack of irrigation. The feasability of tapping water for cattle watering was also rejected because of the possibility of overgrazing. Again this argument appears highly questionable - overgrazing could be prevented by administrative means whilst the area surrounding the dam and the pipeline could have been turned into a valuable cattle breeding region.

As regards the financing of the water facilities, substantially the same measures that apply to the power plant were instituted in the case of the water facilities - the funds borrowed by the government were lent to the Water Utilities Corporation which has entered into an agreement with BCL in terms of which BCL guarantees payment of a certain minimum charge for a period of 25 years. This will ensure that the debt servicing charges and the recurrent costs are met out of recurrent revenue.

Transport

It was estimated that approximately 300 000 tons of coal and coke per annum would have to be transported from Morupule to the smelter and power station at Selebi-Pikwe. Furthermore 150 000 tons of copper-nickel matte would leave the mine each year. The transportation facilities comprised the construction of a 65 kilometre rail spur from Serule to Selebi-Pikwe, a short rail spur from Morupule to Palapye, and an all-weather gravel road from Serule to Selebi-Pikwe. The estimated cost of the project was R 4 180 000. The possibility of a direct road link from Pikwe, south-east to the Tuli Block and north-west to Francistown has also been mooted.

Clause 30 of the Master Agreement provides that BCL shall pay a surcharge fixed by agreement with the government to provide for the costs of the siding between Palapye and Morupule and the line between Serule and Selebi-Pikwe, the cost of the feasibility studies, engineering and administration costs, and all interest charged on the costs incurred. Furthermore, if the proceeds of the surcharge fail to cover the costs referred to above the company will make up the shortfall.

Township

Selebi-Pikwe is a small town of 2 000 plots. All township services - roads, sewers, etc., are provided, as are schools, health centres, a town hall, post office, telephone exchange, police station, and prison. Government housing for approximately 350 families and bachelors has also been provided. The operation and maintenance of these facilities is in the hands of the recently established Township Authority. The Selebi-Pikwe Commercial Development Corporation, a subsidiary of the Botswana Development Corporation, is responsible for the development and management of the commercial centre.

The cost of the township is estimated at R 7 300 000. BCL has agreed to pay the government 75 per cent of the Selebi-Pikwe township common services in the form of a 25 year annuity, in return for the grant of land for BCL's employees housing in the township. Any cost incurred by BCL in the construction of the township is tax deductible.

With the advantage of hindsight it is certainly easy to criticise the planning of the town. The population of the town has been sorely underestimated - the company originally estimated that 1 700 people would be required to operate the mine. White cites Zambian studies which indicate that each mineworker supports approximately 9 people at the mine itself. This alone would suggest a population of some 15 000 excluding the burgeoning number of traders, government and municipal officials, and job seekers. The population growth of the area now known as Selebi-Pikwe has been phenomenal. In 1965 the area consisted of a few cattle posts belonging to the neighbouring village of Mmadinari, and by 1969, with the original exploratory work underway some two or three

hundred people were living in the camps at Selebi-Pikwe. The planners attempted to cater for an initial population of 11 000 which was expected to rise to 28 000 by 1978. With the decision to exploit the ore bodies the population explosion began and now crude estimates of the population range up to between 35 000 and 40 000 inhabitants, a large portion of whom live in a mushrooming tin shanty area known as "Botshabelo" (literally "place of refuge").

The layout of the town is also open to considerable criticism. Hopkinson notes that

> "The town proper has, by some peoples' reckoning, been sadly misplanned. It is built so that there is a high density area, with houses crowded together, each house looking like the next in utter dullness. Safely across an open space of ground, called the park, there is a low density housing area, peopled largely by expatriates: class division is built into the place. At one end of the town there is an english medium school, at the other, two tswana medium. The main shopping area is now under construction, but people are astonished at the prices being charged for rental, which will rule out local traders, and turn the place from a friendly bazaar type place into a sterile supermarket precinct." (p. 2)

Certain peculiar features of the township require further comment. The Botswana Development Corporation has been criticised because of the rentals charged for accommodation in the Selebi-Pikwe commercial centre. The criticism has persuaded the BDC to reduce the rentals from approximately 40 c per square foot to 30 c per square foot. The BDC are anxious to secure a profitable rate of return on their investment but their policy in this regard would appear to be extremely shortsighted, because even the reduced rental will be too high for small local traders and will effectively reserve the

shopping centre for well established retailers from Francistown or Gaborone or, possibly, South African chain stores. There is a state-controlled retail co-operative in Selebi-Pikwe which might be expected to cater for the requirements and budget of the lower paid Batswana and support, where possible, local suppliers. The contents of the co-operative store suggest otherwise. Moreover, it is situated a considerable distance from the main residential area and is therefore supported by those who are able to afford private transport.

General Evaluation of the Shashe Infrastructure Project

The short run benefits from the scheme are obvious - it provided employment for several thousand people and undoubtedly served to provide certain skills.[14] In the longrun costs are insignificant insofar as the project will be self financing. All the proceeds from the sale of the Selebi-Pikwe minerals will be paid into a trust held in London and the power, water and township charges payable by BCL will be drawn from the funds held by the trust.

Whether or not the infrastructure project will generate significant linkages into the industrial and agricultural sectors is open to question and at times it appears that certain features of the project specifically militate against this possibility.

One cannot expect significant linkages to be generated by the provision of transport facilities. It does render industrial development in Pikwe itself a far more viable possibility but, unlike, for example, Zambia, the road and railway construction required by the mining sector

does not open up an interior region with no previous access to transport facilities. The proximity of Selebi-Pikwe to the major road and rail routes meant that extensive development of transport facilities was not required.

The provision of electrical power will encourage industrial development in Selebi-Pikwe and will doubtlessly facilitate the expansion of the Francistown area. In view of the lack of alternatives the high cost of the power station is unavoidable - the necessary funds would probably not have been forthcoming if the government had not been prepared to submit to conditions similar to those laid down by CIDA.

Lack of water is undoubtedly one of the most serious constraints facing both industrial and agricultural development. The extensive requirements of the mining complex will mean that, despite the construction of the Shashe Dam, lack of water will continue to hamper the development of the surrounding areas. One cannot escape the conclusion that the neighbouring rural area might have benefited from use of the water from the Shashe Dam and the refusal to allow use of this water appears highly questionable. The supply of water from the Shashe Dam to the rural areas could have been strictly controlled so as not to impede mining activity during particularly dry seasons. As far as industrial development in the neighbouring areas is concerned, the Shashe dam will not relieve the water constraint and despite the added advantage of improved transportation and power facilities the government will still have to examine the possibility of tapping alternative water sources, notably the Okovango Swamps, if secondary industry is to be attracted to Selebi-Pikwe.

12.4 Revenue

The Botswana government derives revenue from the mining sector from four major sources, namely, corporate profit taxation, dividends and royalties, customs duties on mining imports, and taxation of wage income.

Estimates of fiscal benefits to be derived from the project vary considerably. The latest published estimates anticipate that revenue accruing to the government from BCL royalties, taxes and dividends will total from R 2 million to R 5 million over the first eight years of the project's life, from R 8 million to R 11 million over the next four years and more than R 12 million per annum over the next ten years.[15] These estimates are corroborated by the following estimates of the Ministry of Finance and Development Planning (Table 12.8).

Customs revenue resulting from mining imports will be a substantial, although rapidly diminishing, source of revenue. Estimates of custom revenue are highly unreliable and will be discussed at a later stage. The Ministry of Finance and Development Planning estimate that revenue from personal income taxes, vehicle taxes and other minor sources of revenue will average around R 300 000 per annum.

The revenue derived from corporate profit taxation and from dividends and royalties is determined, to a significant degree, by the size of the mining companies' profits.[16] Thus any possibilities open to the firm whereby it might reduce the size of its tax base must be examined in detail.

TABLE 12.8 Estimated Government Revenue from Selebi-Pikwe

	Government Revenue (R million)
1973/74	0,8
1974/75	5,0
1975/76	5,9
1976/77	6,8
1977/78	7,5
1978/79	8,4
1979/80	10,0
1980/81	10,8
1981/82	10,5
1982/83	10,3

Note: 1) Revenue includes the royalty, dividends, taxation, BCL township contribution, temporary water charges, charges on loans to the Water and Power Corporations, the Railway surcharge.

2) Table 12.10 and 12.11 indicate the relationship between revenue from Selebi-Pikwe and revenue from other sources. Note that part of the revenue attributed to customs and excise duties is derived from imports for the Selebi-Pikwe project.

Source: Ministry of Finance and Development Planning.

Profit Remission

It appears that BCL will not be able to reduce the size of its tax base by underpricing the output of the Selebi-Pikwe mine. BCL is committed to sell its output to BCL (Sales) Limited which is compelled to purchase all the Matte offered to it at a price established by the Sales Agreement.[17] BCL (Sales) is a company incorporated in

Botswana and is subject to exactly the same taxation regulations and corporate control as BCL itself. There is thus no advantage to be gained for BCL by underpricing its output to reduce its tax base - a reduction in its tax base will be reflected as an increase in BCL (Sales) tax base.

BCL (Sales) in turn, is committed to selling the matte to Metallgesellschaft (MG)[18] through the agency of RST International.[19] In terms of the output expected at the time of the signing of the sales agreement BCL are committed to selling, and MG are committed to purchasing, two-thirds of the actual production of nickel up to a maximum of two-thirds of the specified expected annual output, and the entire copper output up to the amount specified in the sales agreement. BCL have agreed to offer for sale in West Germany that portion of the output which MG chooses not to purchase.

The nickel price will be determined by the average daily selling price of the International Nickel Company of Canada, Limited. The copper price will be determined by the cif price at which the major producers of copper sell electrolytic copper wire bars in West Germany. The agreement will remain in force for a period of 15 years. The agreement between BCL and MG derives from KfW loan to BCL guaranteed in part by the West German Government, and from MG's share of the guarantees on the World Bank Loan.

The copper and nickel is sold by BCL (Sales) through the sole agency of RST International who receive a commission for their services.

The upshot of these complex, rigid arrangements is that the sale of the matte is not merely an interfirm accounting entry but is conducted at arms length which severely restricts the firm's ability to set price in terms of tax minimisation criteria which it might have established. I must remind the reader that the matte is not sold by BCL (Sales) to Amax - Amax toll refine the matte and the sale is made directly from BCL (Sales) to the West German market.

It appears that the government have also tried to restrict the firm's ability to control the supply of inputs. Clause 10 of the Master Agreement provides that BCL and BCL (Sales) may not acquire substantial assets outside of Botswana which are unnecessary to the conduct of the Selebi-Pikwe mining operations and prohibits them from acquiring, either directly or indirectly, any mine or mining right outside of Botswana. It would appear therefore that BCL is prohibited from establishing a purchasing company outside of Botswana and so remitting profits by means of overpricing inputs. BCL (Pty) Limited is a company incorporated in South Africa and was formed in order to reduce the R 13,5 million IDC credit. This credit has been exhausted although BCL (Pty) Limited remains in existence. This does not necessarily suggest that BCL (Pty) Limited is being used as profit conduit although it would appear that the very existence of the firm contravenes the Master Agreement unless, of course, BCL and BRST are not shareholders in BCL (Pty) Limited. I have been unable to acquire any further information regarding the activities of this company.

The major shareholders of BRST, Amax and Anglo American, have a substantial stake in copper mining in Southern and Central Africa and also control important industrial

interests. Amax and Anglo control the management of BCL and it is not inconceivable that they sell inputs to BCL from a Zambian or South African subsidiary. A sale of this nature need not affect the size of BCL's profits if the asset is transferred at the prevailing market price, although if the asset has been depreciated by the seller the overall global profits of the corporation will be increased. It is difficult to ascertain whether any of the inputs required by BCL are manufactured in Anglo or Amax subsidiaries but given the industrial and mining interests of both companies it is difficult to believe otherwise. A factor which would militate against over-pricing of this nature is the joint control exercised by Anglo and Amax - a senior government official indicated that a "healthy element of tension" existed between Anglo and Amax and the one is unlikely to allow the other to benefit consistently from the practice of overpricing. In the final analysis it is impossible to assert that BCL does purchase overpriced inputs although the possibility does exist and should be borne in mind by the government planners.

It thus appears that the bulk of BCL and BRST's profits will be remitted by way of dividends and interest to the major shareholders and lenders. The government have a 15 per cent interest in BCL and BCL (Sales) but they hold no interest in BRST. Paradoxically it appears that, whereas the government have attempted to seal off the "unconventional" channel of profit remission (that is, the transfer pricing mechanism), they have permitted, unhindered, remission by way of dividends. Clause 29 of the Master Agreement provides that dividends payable by BRST and BCL may be freely remitted. This was entrenched

in the Selebi-Pikwe Tax Agreement Ratification Act of 1970, Section 11 (B) of which explicitly states that "Dividends paid by BCL or BRST (i) to companies resident within Botswana or, (ii) to persons who are not resident within Botswana through a permanent establishment shall not be subject to Botswana tax". In mid-1973 the highly comprehensive Income Tax Act (no. 10 of 1973) was legislated and Section 32 (1) specifically provides that a resident company which pays a dividend to a non-resident will deduct tax of 15 per cent from the payment. But part II of the Second Schedule specifically exempts from taxation "any amount payable by way of dividends by Bamangwato Concessions Limited, BCL (Sales) Limited, or Botswana RST Limited to

a) a resident company, or
b) any non-resident who does not carry on business in Botswana through a permanent establishment situate therein".

In effect, therefore, BCL and BRST may remit dividends free of tax. The mining companies are not exempt from Section 71 (b) of the Income Tax Act which stipulates that all persons remitting dividends must furnish a return to the tax commissioner indicating the amount of the payment and the identify of the recipient. This may act as a deterrent insofar as it will not be politic for the companies to be seen remitting a large portion of its profits abroad each year but there is no legally imposed financial burden deterring remission. This exemption could prove costly and I shall attempt to spell out the statistical implications of the withholding tax exemption in the next chapter. If the government had refused to exempt BCL and BRST from the withholding tax they would have

contravened the Master Agreement - it does, however, appear strange that the government should have legislated in favour of a withholding tax of this nature and then exempted the major portion of the withholding tax base from the provisions of the act.

A further possible channel of remission lies in the use of interest payments on intercompany loans. Once again the mining companies have been granted substantial concessions of a similar nature to the dividend concessions.

Section 58 (1) stipulates that every resident who pays interest on a loan from a non-resident shall deduct tax from the interest payment. The Second Schedule of the act exempts any interest payable by BCL and BCL (Sales) from taxation and it also exempts BRST interest payments abroad from taxation in so far as the interest paid is in respect of money borrowed by BRST and made available to BCL for mining operations or exploration in Botswana. Furthermore, the interest paid by BRST on loans made by it to BCL may be deducted from the interest received by BRST from BCL when BRST's tax returns are computed.

The Selebi-Pikwe project is highly geared and the interest concessions are likely to be significant. It is extremely difficult to calculate the debt serving commitments of BCL and BRST. The Ministry of Finance and Development Planning estimates that in 1977/78 the Selebi-Pikwe project (presumably BCL) will pay out R 6,2 million in interest. They estimate that in 1977/78 the entire mining and quarrying sector will remit R 20,2 million in the form of interest and dividends thus the interest payments from Selebi-Pikwe constitute a significant portion of total remission. Furthermore the technical problems have necessitated

increased borrowings from Anglo and Amax and interest remissions are likely to increase. Anglo and Amax could in fact use these interest payments as an avenue of profit remission.[20]

Thus, in summary, it appears that although the Botswana Government have attempted to prevent remission of profits by means of price manipulation, they have permitted tax free and therefore costless remission by way of dividends and interest payments. It is impossible to ascertain to what extent the mining companies will be able to manipulate the size of their tax base but, in any event, it appears that the tax levied on corporate income will remain a major source of revenue for the Botswana government.

Corporate Income Tax

When, in 1959, the Bamangwato Tribal Authority entered into the agreement with RST the tax legislation then in force, namely the Income Tax (Consolidation) Proclamation of 1959, provided for corporate taxation at a rate of 30 per cent. The mineral rights vested in the Bamangwato tribe were transferred to the state in 1967 and in 1973 the Income Tax Act repealed the 1959 Proclamation.

Clause 9 (A) of the Selebi-Pikwe Tax Agreement Ratification Act provides that BCL will be subject to a tax of 40 per cent on its taxable income. This is somewhat higher than the normal tax rate of 30 per cent specified in the Income Tax Act. Clause 8 (B) introduces a tax escalator and provides that if the "operating profit margin" exceeds 48,5 per cent in any tax year the rate of taxation will be increased by an amount equal to the difference between an

operating profit margin of 48,5 per cent and the actual margin, that is, if the operating profit margin in any year reaches 50,5 per cent the rate of taxation will be increased to 42 per cent. Clause 8 (B) is subject to the provision that the tax rate shall not exceed 65 per cent in any one year.[21]

Although the mining companies are taxed at a somewhat higher rate than other companies, they are granted certain significant concessions in regard to taxation.

As noted above, Clause 5 of the Tax Agreement provides that interest and commitment fees on monies borrowed by BCL are to be deducted when the company's tax base is computed. This has been affirmed by the Income Tax Act which also extended this provision to BCL (Sales) and BRST. It is interesting to note that when calculating the operating profit margin interest is included as a production cost and is therefore tax deductible, despite the fact that the interest paid by BCL, BCL (Sales) and, under certain conditions, BRST is exempted from Botswana tax.

Clause 6 details the items to be deducted as "capital expenditure" and specifies the method of deduction. This too has been confirmed by the Income Tax Act.

The Income Tax Act defines "mining capital expenditure" as including, inter alia, expenditure incurred in the acquisition of a mineral, mining or prospecting right or mining or prospecting information from another person; the cost incurred in the construction of a mining site, the construction of buildings, works of a permanent nature and "other improvements"; any contribution made to the cost of providing power and communication facilities for

the mine and residential accommodation and welfare facilities for the employees; the costs of general administration and management which includes, inter alia, interests payable on loans raised to facilitate the development and operation of the mine. Section 40 of the Income Tax Act specifies that deductions allowable to the mining sector include all expenditure incurred outside of Botswana in the production of its assessable income from the Botswana operation. This latter provision is very loosely phrased and might be used as a means of profit remission. As noted above, significant deductions are granted in respect of expenditure incurred in the training of the labour force - this latter provision is a general provision and applies to any company operating in Botswana.

The amount of the deduction allowed to the mining companies is calculated in terms of a complex formula. Clause 6 (B) of the Tax Agreement provides that in the first year of commercial production an amount equal to the quotient obtained by dividing all capital expenditure in that year and all previous years by five, in the following three assessment years by dividing the capital expenditure unredeemed in the previous years plus all capital expenditure incurred in those years by four, three, and two respectively; and in each succeeding year by an amount equal to the unredeemed capital expenditure at the beginning of the year plus all capital expenditure incurred during that year. It is stipulated that the deductions outlined above may not exceed 75 per cent of the taxable income for that year prior to charging the abovementioned deductions but after charging all other deductions, because it appears that the deductions referred to above are granted in addition to those generally permitted in terms of the Third Schedule to the Income Tax Act.

It thus appears that whereas the tax rate applicable to the mining companies is somewhat higher than that imposed upon other investors, the deductions granted to the mining companies and, more particularly, the concessions granted which provide for rapid depreciation of their capital assets will significantly offset the additional tax burden. Joubert calculates that, while capital is being written off, the aggregate of royalty and tax paid is reduced from 44,5 per cent of gross profits to 16,75 per cent.. It is interesting to note that the 1973 - 78 Plan admits that "the generous provisions for relief for investors, incorporated in the new Income Tax Act, 1973, will dampen the rate of growth of revenue from that source, but this effect will be partly offset by the new withholding tax on dividends paid to non-residents" (para 4.9). In the light of BCL and BRST's exemption, this statement is extremely optimistic.

Customs Duty

Duty imposed on goods imported for use in the mining sector is another important source of revenue. The revenue derived from this source will decline after the first few years of mining development and, as such, should be viewed as an essentially transitory source of revenue.

In the early construction phases large quantities of imported commodities will be required, not only by the mining companies themselves but particularly by the various contractors responsible for the provision of certain elements of the infrastructure and also for the construction of the mine.

As noted above, the new Customs Union agreement ensures that the customs revenue received by BLS will reflect the value of dutiable goods produced and consumed in each country. This is a considerable advance upon the 1910 Agreement and has resulted in a revenue boom for Botswana. It is estimated that the revenue sharing formula ensures that Botswana (like Lesotho and Swaziland) will receive approximately 20 per cent of the value of all dutiable goods imported into and consumed in the country in any year. The following is an extremely tentative estimate of mining imports and the customs revenue accruing as a result thereof.

TABLE 12.9 Mining Imports and Customs Revenue from the Mining Sector, 1973 - 1983 (R million)

	Mining Imports	Customs Revenue Mining Imports
1973/74	46,0	20,9
1974/75	7,7	27,6
1975/76	4,5	14,0
1976/77	13,1	6,4
1977/78	28,2	6,3
1978/79	15,9	3,5
1979/80	6,7	9,9
1980/81	10,8	3,6
1981/82	10,9	2,8
1982/83	27,0	1,1

Source: Ministry of Finance and Development Planning.

The above table is extremely difficult to interpret largely becauseof the lag between imports and the receipt

of Customs revenue. Nevertheless, the table does serve to indicate the importance of this revenue source particularly in the early phase of the mining development.

Royalties and Dividends

The original Deed of Concession negotiated between the Bamangwato Tribe and RST provided that, in the event of the formation of a mining company, a royalty amounting to 15 per cent of the excess of sales revenue over production cost or a minimum royalty of £ 250 per month would be paid to the Tribal Authority. The value of the royalty was tax deductible thus reducing the effective rate to 13,04 per cent. The Mines and Minerals Act of 1967 which amended and consolidated all previous mining legislation provides for a royalty amounting to 3 per cent of the gross market value of all minerals extracted in Botswana.

In terms of the Mines and Minerals Act and the Bamangwato Concessions Limited Mining Lease Act (1970) BCL was granted a mining lease and the royalty ultimately agreed upon between the government and the company differs considerably from that provided either in the original Deed or in the Mines and Minerals Act. Clause 12 (A) of the BCL Mining Lease Act provides that the company shall pay to the government a royalty equivalent to 7½ per cent of the excess of sales revenue over production cost. Clause 12 (B) provides that in each financial year the company will pay an advance royalty of R 750 000. The Selebi-Pikwe Tax Agreement Ratification Act provides that royalties are to be construed as part of the cost of production and are, as such, tax deductible.

Joubert has pointed out several interesting implications arising from the changed tax rates (from 30 per cent to 40 per cent) and the method of calculating royalties. A large proportion of the shareholders are United States citizens and US law permits foreign tax payment to be offset against US tax payments but it does not permit royalty payments to be offset. Thus the total net amount of the tax, both US and Botswana, is reduced whereas the aggregate of royalty and tax payments accruing to the Botswana governments is increased from 39,13 per cent of gross profits to 44,5 per cent.

When the original Deed of Concession was entered into between RST and the Bamangwato Tribal Authority it was agreed that the Tribe would receive a 15 per cent gratuitous share of the equity of any mining company which might be formed to exploit the resources of the Bamangwato Tribe. In 1967, when the mineral rights passed to the State, so did all the rights, title and interest in the original Deed and agreements. The government's equity share is confirmed by Clause 21 of the Master Agreement. It is impossible to estimate the size of the dividends that BCL will declare in future years. The 1973 - 78 National Development Plan estimates that in 1975/76 the government will receive R 110 000 in the form of dividends, rising to R 830 000 in the following year, and R 1 220 000 by 1977/78. The altered financial structure of the company is likely to affect these predicitions. Possibly all that one can assert is that BCL's dividend declarations are likely to be considerable because they constitute an inexpensive form of profit remission.

Miscellaneous

The company is committed to pay several statutory fees of which the most significant is the licence fee of R 75 000 per annum payable monthly in advance.

In 1972 an extremely important piece of legislation was enacted, namely the Mineral Rights Tax Act. This act is particularly significant in that it provides for the taxation of privately owned mineral rights. The Vice-President specifically stated that, in so doing, the government did not contest the right to private ownership of mineral rights nor did it attempt, in any way, to deprive the owners of their mineral rights - the act merely wished to ensure that the nation as a whole derived a benefit from what was essentially a national resource. The act therefore provides that privately owned mineral rights will be taxed either using the land area of the mineral right as the base (R 40 per square kilometre per annum) or the value of the mineral right (10 per cent of the value per annum) whichever yields more revenue. Importantly however, any expenditure properly incurred in prospecting activity in the previous year will be offset against the tax liability. Therefore in certain years the holders of the mineral rights will not be subject to any tax liability in terms of this act but, if no prospecting activity is undertaken, the full weight of the tax will be felt. There can be little doubt that this tax is specifically designed to persuade the holders of the mineral rights in the Tati Concession to carry out extensive prospecting activity in the concession area and/or to exploit the deposits known to exist at Selkirk and Phoenix. The Tati Company is not capable of undertaking mineral extraction itself and although they agreed to permit the Anglo American Corporation to undertake the initial exploratory

work they have refused to permit the Corporation to carry out more intensive prospecting activity. Thus far the act has not succeeded in persuading the Tati Company to engage in any prospecting or mining activity. The act has had the effect of causing Anglo to relinguish its mineral rights in the Tuli, Gaborone and Lobatse Blocks.[22]

12.5 Summary

This lengthy chapter undoubtedly constitutes the centre-piece of the entire dissertation. One might justifiably argue that the description and analysis preceding Chapter 12 has attempted, in fact, to establish the setting within which this chapter is presented - the generalised theoretical hypotheses and conclusions, and the particular features of the Botswana economy and the Selebi-Pikwe project. And the chapters that follow merely conclude the analysis of the present chapter - the proportion of value retained in the host country and its distribution amongst the various interest groups is crucially determined by the manner in which it is generated. There are certain policy tools available to the host government whereby the proportion of value retained and its distribution may be influenced, but the impact of any policy variable is narrowly circumscribed by the nature of the value adding mechanism. In Chapter 12 I have attempted to outline the manner in which the copper-nickel industry contributes to the value of Botswana's national product and, without wishing to anticipate Chapter 15, it is probably desirable to summarise briefly the important conclusions that have emerged thus far.

The capital intensive techniques of production employed by the mining company ensure that the Selebi-Pikwe copper-

nickel mine will make a small contribution to total employment, but that the labour force will consist of a relatively large proportion of high level manpower. The wage rate prevailing in the mines - unskilled, skilled, and high-level - will be higher than that of the other sectors of the economy and there is every possibility that the mining sector will act as a wage leader. The wage bill of the mining sector is considerable but a large proportion of this wage bill will accrue to a small elite of highly paid, largely expatriate, employees. The government have attempted to counter these problems by according priority to localisation of the workforce and by the enunciation of an incomes policy. The mining sector's localisation position is predictably unfavourable and, therefore, its wage levels remain excessive. The government hopes to control profit levels by means of taxation policy.

In section 12.3 it is argued that the investment multiplier, in so far as its impact is realised in Botswana, will be small. The corporate structure of the copper-nickel industry will reduce the likelihood of generating domestic backward and forward linkages - the major shareholders of BRST, Anglo and Amax, control substantial mining interests in the neighbouring territories and Anglo controls industrial interests in South Africa. These could be used as sources of supply for the Botswana copper-nickel industry. The company will not, of its own volition, establish a refining plant in Botswana. The Botswana matte is of some importance to the Amax refinery and there is little reason to expect a local refinery to be established. Furthermore, and probably of greater importance, the geographical polarisation of industrial development in Southern Africa strongly favours the developed centre. This is particularly true in the case of heavy mining equipment and is also true of the small scale, less costly inputs. The consumption linkages

will be smaller than might be expected largely because of the structure of the industry's labour force. The benefits stemming from the infrastructure are difficult to assess but it appears that, despite the construction of the Shashe Dam, the water constraint will remain important. If the Botswana government is able to overcome this constraint the power plant, the improved communication facilities, and particularly, the existence of a large market might encourage the development of a small industrial area around Selebi-Pikwe.

The copper-nickel industry's most significant contribution lies in the area of government revenue. The mining companies, particularly BCL and BRST, have been granted significant concessions, although the tax rate applicable to BCL, BCL (Sales) and BRST is somewhat higher than the rate applied to other companies. The following table illustrates the government sector's dependence on the mining sector.

TABLE 12.10 Source of Government Recurrent Revenue Plan Period (1973 - 1978) - (R million)

Source	Amount	Per cent
Mining and Associated Revenue	68,5	29,2
Customs, Excise and Sales Duties	99,8	42,6
Other Sources	66,0	28,2
	234,3	100,0

Source: National Development Plan, 1973 - 78, Table 4.4.

The above table aggregates the contribution made by the entire mining sector. The Diamond industry's share will be significant[23] and probably half of the total will

be attributable to the Selebi-Pikwe project. Moreover a large portion of the revenue accruing in the form of customs, excise and sales duties constitutes taxation levied on imports required by the Selebi-Pikwe project.

Furthermore, the government's dependence on the mining sector as a source of revenue is expected to increase markedly.

TABLE 12.11 Projected Central Government Revenue from Domestic Sources 1973/74 to 1977/78 (R '000)

Year	Mining Projects (1)	Customs, Excise and Sales Duties (2)	Other Sources (3)	Total (4)	(1) as % of (4) (5)
1973/74	5 981	20 941	10 810	37 732	15,9
1974/75	9 486	22 830	11 891	44 207	21,5
1975/76	15 617	16 906	13 080	45 603	34,2
1976/77	18 854	17 345	14 388	50 587	37,3
1977/78	18 540	21 740	15 827	56 107	33,0
% growth p. annum	32,7	0,9	10,0	10,5	

Source: National Development Plan, 1973 - 78, Table 4.3.

The implications of this dependence will be re-examined in the concluding chapter.

NOTES TO CHAPTER 12

1 With the exception of the Railways which is controlled by Rhodesia Rail. This is an important factor accounting for the poor localisation record for the transport and communication sector.

2 A senior BCL official informs me that despite the fact that BCL offer its unskilled miners a slightly higher wage than is available in the South African mining sector many Batswana actually prefer to seek employment on the South African mines.

This might be explained by the higher non-cash wage available in South Africa, or by the allegedly poor conditions of employment prevailing in the Selebi-Pikwe mine.

3 The data regarding wages - skilled and unskilled - is summarised in Table D.1 of the Manpower Report. The average wage conceals the large differentials referred to above and it is not useful to reproduce the table here.

4 See Ghai, D. P. and National Policy on Incomes, Employment, Prices and Profits. Government Paper No. 2 of 1972.

5 The Manufacturing sector is dominated by the Botswana Meat Commission. A 0,1 elasticity of demand might be realistic in the case of the BMC but it will not be realistic in the case of small scale industry.

6 A comment in the Government White Paper (No. 2 of 1972) outlining the incomes policy surely justifies an absolute reduction of certain wages. It notes that "... administrative, managerial, and professional people receive basic local salaries (excluding expatriate inducements) which are as high as, or, in the case of young university graduates, even higher than comparable rates in highly developed countries" (para 10).

7 See also Government Paper No. 2 of 1972, paras 25 - 27.

8 Although one cannot help suspecting that the recent wage increase is prompted, in part, by the impending national elections.

9 The Industrial Development Corporation of South Africa have lent BCL R 13,5 million in the form of an export credit.

10 The Mazazuru, a sect from Rhodesia, have a large stake in the sale of fresh foodstuffs. They are well known as informal traders in most parts of Botswana.

11 The Brigades are self-financing, co-operative organisations which attempt to provide training and employment to primary school leavers, whilst simultaneously engaging in production. They have been established in several rural centres in Botswana and are engaged in, inter alia, farming, construction, electrical work, textiles, etc. The Brigade movement was initiated by members of the Serowe community. See van Rensburg.

12 Most of the information in this section is drawn from the agreements between the Government and CIDA (dd. 16/11/70), the World Bank (30/6/71) and US AID (30/6/71); the Reports of the Shashe Project Management Unit; an unpublished document of the Shashe Project Management Unit entitled "Shashe Project Infrastructure".

13 Note that another important factor influencing the choice of location is that with the power unit situated at the mine the waste heat steam from the mining operations can be used to generate a part of the power supply.

14 Additional skills are, of course, only beneficial if they are employed in productive activity. Most of the workers employed in the construction of the mine and the infrastructure have been laid off and many of them have not found other employment. This would suggest that the pecuniary externalities are unable to "accommodate" the technological externalities - see chapter 9.

15 "The Shashe Project in North East Botswana" - paper of the Ministry of Finance and Development Planning, July 1973.

16 Of course, dividends are not determined directly by the size of the profits. It is an internal company decision and other priorities may determine the dividend declaration.

17 Matte Sales Agreement between BCL and BCL (Sales) Limited dd. 1st March 1972.

18 Sales Agreement (Refined Nickel, Copper, Cobalt, and other Metals) between BCL (Sales) Limited and Metallgesellschaft AG dd. 22nd November 1971.

19 Metal Sales Agency Agreement between BCL (Sales) Ltd and RST International Incorporated dd. 1st March 1972.

20 As noted in chapter 10, BRST's borrowings have increased substantially in recent months. As at 30th June 1974 loans totalled R 101,5 million, an increase of more than R 25 million since December 1973. Amax and Anglo are probably responsible for just under half of the total.

21 The "operating profit margin" is basically the difference between the revenue from sales and the costs of production. For a definition of the latter see the Selebi-Pikwe Tax Agreement Ratification Act, Part I.

22 See Anglo American Corporation, Annual Report 1972, p. 37.

23 Estimated at R 28 million.

CHAPTER 13

The Value Retained

13.1 Introduction

Chapter 12 was concerned primarily with assessing the value added by the copper-nickel industry. For obvious reasons it has been impossible to operate with reliable statistical measures although extensive use has been made of several statistical projections.

Thus far it has been ascertained that the average wage in the mining sector will be relatively high and thus, despite the relatively small size of the sector's labour force, the total wage bill will be considerable. Furthermore, it appears that the mining sector's expenditure on intermediate goods will be considerable, not only in the initial construction period but throughout the course of their operations - the government estimates that in 1978 the Selebi-Pikwe mines will spend approximately R 8 million on intermediate goods. The previous chapter stressed the importance of the revenue that will accrue to the government as a result of the Selebi-Pikwe project, constituting, as it does, a significant portion of total government receipts. No attempt has been made to estimate the size of the companies' profits - implicitly it has been assumed that BCL will realise substantial profits from the Selebi-Pikwe mine. The estimated size of the dividend indicates expectations of a healthy profit as, indeed does the expected size of government revenue which is crucially, although by no means entirely,

determined by the size of the profits. It must be acknowledged that the profit expectations are extremely haphazard and open to doubt - the exercise of profit projection has been rendered all the more dubious by the constant technical problems experienced at Selebi-Pikwe and the consequent cost escalations.

Therefore, the primary concern thus far has been with value added. This chapter concentrates upon the question of value retained, that is, with the foreign exchange content of the value added. Much of what is dealt with in this chapter will have already been implicit in previous chapters and, for the most part, this chapter will serve to emphasise particular aspects of chapter 12.

13.2 The External Accounts - an Overall Perspective

Although this chapter is concerned primarily with examining individual components of the value added by the mining sector, it is useful to obtain an overview of the external accounts - both the current and capital accounts - and to examine the contribution made by the mining sector within this framework.

The foreign trade statistics are extremely unreliable but they do indicate the important part played by mining development in the level of exports and imports.

Table 13.1 speaks for itself. The export value of the mining sector's output far exceeds that of any other sector and its share of total export value is expected to increase during the period under review. Table 13.2 is more difficult to interpret. The value of imports required by the mining sector fluctuates considerably.

TABLE 13.1 Past and Projected Exports (R million)

Financial Year (1)	Livestock Products (2)	Minerals (3)	Others (4)	Total (5)	(3) as % of (5) (6)
1971/72	17,0	11,7	2,3	31,0	37,7
1972/73	21,0	19,0	2,7	42,7	44,5
1973/74	23,0	38,0	3,5	65,5	58,0
1974/75	24,4	85,0	4,1	113,5	74,9
1975/76	26,0	90,0	5,0	121,0	74,3
1976/77	27,4	95,0	7,1	129,5	73,4
1977/78	29,0	100,0	10,0	139,0	71,9

Source: National Development Plan, 1973 - 78, Table 1.14

TABLE 13.2 Past and Projected Net Imports (R million)

Financial Year (1)	Net Imports (2)	Mining Sector Imports (3)	(3) as % of (2) (4)
1969/70	34,3	n.a.	-
1970/71	44,8	n.a.	-
1971/72	62,7	n.a.	-
1972/73	85,1	n.a.	-
1973/74	83,4	46,0	55,2
1974/75	85,9	7,7	9,0
1975/76	96,1	4,5	4,7
1976/77	106,5	13,1	12,3
1977/78	119,6	28,2	23,6

Source: National Development Plan, 1973 - 78 and Ministry of Finance and Development Planning.

In 1973/74 it has been estimated that mining imports comprised more than half of total imports, and that in 1975/76 the mining sector will account for less than 5 per cent of total imports. The volume of imports in any particular year depends on the new developments taking place within the mining sector. In 1973/74 the activity at Selebi-Pikwe accounted for the high level of imports. In 1977/78 the level of mining imports is expected to be noticeably high which is probably a result of the expected requirements of the mine at Selebi and possibly the development of the Sua Pan deposits.

The development of the mining sector not only affects the external accounts via its impact on the export and import of goods but also through its impact on the capital account and, of course, as a result of the remission of investment income to the foreign shareholders. The Balance of Payments estimates, reproduced below, summarise the impact of the mining development on the external accounts. Section D of the table is equivalent to the changes in the level of foreign reserves in a country with a Central Bank.

In 1971/72 the large deficit on current account was offset by the inflow of capital. This capital inflow is attributable almost entirely to the development of the mining sector - the loans to government are largely in respect of the Shashe Project and private investment refers almost entirely to the copper-nickel industry. By 1977/78 the growth of the mining sector, particularly Selebi-Pikwe, will give rise to a substantial surplus on the trade account but the net remission to foreign investors is expected to offset the trade surplus. The capital account surplus is expected to decrease from R 47 million in 1971/72 to R 1 million in 1977/78 - by 1977/78 the repayments on the loans in respect of the mining investments will have commenced.

TABLE 13.3 Balance of Payments Estimates, 1971/72 and 1977/78 (R million)

	1971/72	1977/78
A. Goods and Services		
Export of goods less imports, adjusted for duty content	- 19	43
Net services and investment income	- 22	- 53
Net goods and services balance	- 41	- 10
B. Unrequited Transfers		
Government	5	10
Private	3	3
Current Account Balance	- 33	3
C. Capital Account		
Loans to Government	11	15
Private Investments and Loans	36	- 14
Overall Balance	14	4
D. Monetary Sector		
Net changes in foreign assets of financial institutions	8	-
Net imports of notes and coins	2	4
Errors and omissions	4	

Source: National Development Plan 1973 - 78, Table 1.17

It is difficult to arrive at any firm conclusions on the basis of these figures. We might extract and project capital inflows and compare these with loan servicing charges and the remission of investment income to foreign shareholders. Although the reliability of the statistical projections would be highly questionable we might arrive at an approximate estimate, and thus assess whether Botswana emerges as a net loser or earner of foreign exchange as a result of the project. But the relevance of an exercise of this nature is questionable. Chapter 12 indicates that the inflow of capital into the mining sector is productive insofar as it combines with other factors of

production and realises a certain surplus - wages are paid, taxes and other statutory charges are levied, and profits are earned. A certain portion of this added value will be remitted abroad and it is with this issue that the remainder of this chapter is concerned.

13.3 Material Inputs

The value added and retained by the mining sector will not be affected directly by the origin of the material inputs consumed in the productive process. If we are to assess the overall impact of the growth of the copper-nickel industry it will be important to determine the share of expenditure on material inputs that is incurred locally.

The Ministry of Finance and Development Planning estimates that the mining sector consumed intermediate goods to the value of R 5,5 million in 1971/72 and it is estimated that this will increase to R 12,1 million in 1977/78. The Selebi-Pikwe mines will account for approximately R 8 million of the 1977/78 total. An unofficial estimate suggests that R 3 million to R 4 million of this expenditure will be incurred locally. This would appear to be highly optimistic particularly as the mines will have to continue importing coal from South Africa. Chapter 12 indicates that, for a variety of reasons, most of the expenditure on intermediate commodities will be incurred abroad - particularly heavy mining equipment and machinery, and also the smaller less costly mining inputs such as protective clothing. In fact, until Morupule coal is purchased, it would be optimistic to suggest that more than 15 per cent to 20 per cent of this expenditure will be incurred locally. Most of the local expenditure will be incurred

in the construction sector or in the purchase of building equipment, in the purchase of industrial gas from the plant that will open at Pikwe, and in the purchase of water, power and transportation.

13.4 Wages and Salaries

Wages and salaries will be remitted abroad in the form of savings and in the form of consumption of imported commodities.

Table 13.4 is an estimate of earnings accruing to foreign workers.

TABLE 13.4 Estimated Earnings of Foreign Workers 1977/78, 1983/84 - 1973/74 prices, R million

Sector	1977/78	1983/84
Mining and Quarrying	3,1	8,4
Building	1,9	5,0
Trading, Hotels, Restaurants	0,2	0,5
Transport and Communications	1,9	4,6
Financial Institutions	0,5	1,2
Central Government	n.a.	na.
	7,6	16,7

Source: Ministry of Finance and Development Planning

Selebi-Pikwe will account for approximately 65 per cent of the mining sector's 1977/78 total, that is, approximately R 2 million and approximately 50 per cent of the 1983/84

total, that is, R 4,2 million. It is estimated that 50 per cent of the earnings of foreign workers accrue in the form of bonuses and gratuities usually paid on expiry of their contract. Most of this will be remitted abroad in the form of savings. A small portion of the wages and salaries components might be remitted in the form of savings but most of it will be spent on imported consumer goods - locally produced fresh foodstuffs will be purchased, a certain amount of entertainment, schooling, but most consumer necessities, furniture, clothing, processed foodstuffs and the like will be imported. It is not unrealistic to expect at least 50 per cent to 60 per cent of the wages and salaries component of expatriate earning to be remitted abroad in the purchase of imported consumer goods. This coupled with the high proportion of bonuses and gratuities paid abroad means that foreign workers will remit approximately 70 per cent of their total earnings abroad.

The foreign exchange content[1] of the earnings of Botswana nationals will not be as high - remission abroad in the form of savings will be low[2] but expenditure on imported consumer goods will be substantial. The high income earners' import propensity will be only slightly lower than that of their expatriate counterparts, although the import propensity of the unskilled workers will be insignificant. Both high income and low income employees will remit a portion of their earnings to the rural areas - both in the form of investment and in order to bolster the consumption of their families living in the tribal villages. This will lower the foreign exchange content of their earnings.

13.5 Profits and Interest

TABLE 13.5 Interest Paid and Profits Remitted 1977/78, 1983/84 - 1973/74 prices (R million)

Sector	1977/78	1983/84
Mining and Quarrying	20,2	36,3
Building	6,1	16,2
Trading, Hotel, Restaurants	1,2	2,8
Transport and Communication	1,9	4,6
Financial Institutions	1,4	3,2
Central Government	3,0	6,0
TOTAL	33,8	68,1

Source: Ministry of Finance and Development Planning

It is not clear whether Table 13.5 refers to profit and interest remitted abroad or to profit and interest remitted to all shareholders and lenders. However, comparing the profit figures in the above table with the pre-tax profit figures of Table 11.2 it appears that Table 13.5 refers to remissions abroad. In any event all interest will be paid abroad and 85 per cent of profits remitted by Selebi-Pikwe mining companies will be remitted to foreign shareholders.

It is reasonable to assume that all interest payments abroad are made in respect of the Selebi-Pikwe project - this is confirmed by Table 11.2. Selebi-Pikwe will account for approximately one-half of the profit remissions estimated in Table 13.5 - the copper-nickel

industry's share of profit remissions is likely to be somewhat greater in 1983/84 than in 1977/78. In any event it appears that the foreign exchange content of the interest payment will be 100 per cent and the foreign exchange content of profits remitted in the form of dividends will be 85 per cent. It might be argued that a certain portion of the profits will be reinvested in the further development of the copper-nickel industry. It is likely that the companies will wish to finance future expansion by raising loans or increasing the equity capital - interest repayments are a useful channel of profit remission and, given that dividends are a taxfree form of profit remission, it is unlikely that the company will reinvest profits which may be remitted abroad so inexpensively.

13.6 Government Revenue

It is impossible to estimate with any degree of accuracy the foreign exchange content of the revenue which accrues to the government from the mining sector. It is reasonable to expect that the complex task of administering a large scale, sophisticated mining sector will necessitate, as it has done, the use of some foreign personnel and equipment.[3]

13.7 Summary

It is evident that there will be a significant divergence between value added and value retained, and this divergence is attributable to the high foreign exchange content of the wages and salaries and profit and interest components of value added.

As noted in the introductory chapter Botswana does not face a Balance of Payments or foreign exchange constraint in the usual sense. Nevertheless by continually operating a deficit on their external accounts they will decrease the money supply at a time when they might wish to inject additional supplies of money into the economy. Furthermore, remission of foreign exchange outside the sterling area requires the permission of the South African authorities - the South African authorities have refused to guarantee that they will provide foreign exchange for remission of profits to the United States shareholders. This problem has been overcome by an agreement between Metallgesellschaft and Amax.

NOTES TO CHAPTER 13

1 The term "foreign exchange content" effectively refers to that part of the value added remitted abroad. The term is used interchangeably with "foreign exchange requirement" - see chapter 5.

2 Although in so far as saving takes the form of increased bank balances a large portion of the savings will be remitted abroad - see chapter 14, below.

3 It might be possible to estimate the foreign exchange content of government revenue in general. It is more difficult to estimate the foreign exchange content of the government revenue accruing from the mining sector. We would have to estimate the additional foreign exchange required by the government as a result of the development of the mining sector.

CHAPTER 14

The Distribution of Income

14.1 Introduction

The introductory chapter broadly outlines the inequities of the distribution of income in Botswana. Chapter 11 notes the government's growing concern with this problem and it is thus extremely important to examine the impact which the development of the mining sector will have on the distribution of income.

Official concern is directed primarily at the income gap existing between the urban and rural sectors. However, within each of these sectors there is considerable disparity between the earnings of the highest and lowest paid workers. I will argue that the development of the mining sector may affect the inter-sectoral gap (urban-rural) and the intra-sectoral gaps (urban-urban, and possibly rural-rural). Once again many of the arguments which will be detailed below will have been raised in Chapter 12 but given the marked disparities in earnings and the growing official concern it appears that the question of distribution is of sufficient importance to warrant explicit attention.

14.2 Wages, Employment and the Distribution of Income

Chapter 12 outlined the wage and employment policies prevailing in the copper-nickel industry, and the analysis reveals a clear division within the mine's labour force.

On the one hand there are the high income skilled employees. This group is expatriate dominated and their level of earnings is determined on the international market. A distinction is drawn between the wages (or salaries) of this group of employees and their total earnings and although their wage levels are expected to conform to the relevant government scales it appears that they are markedly higher than those pertaining in any sector of the economy. Table 12.3 indicates that 52,9 per cent of the mining sector's skilled labour force earn a wage in excess of R 150 per month.

On the other hand, the mines employ a large number of workers who, for the purposes of this analysis, have been defined as unskilled, although many of these employees will have acquired some experience and training on the South African mines. Their average wage is somewhat higher than the average wage of the unskilled workers employed in other sectors of the economy, with the exception of the transport sector.

a) <u>The high wage "elite"</u>

The possibility that the mining sector will act as a wage leader has been discussed in previous chapters, and the recent increases granted to the civil service bear out this argument. If the high wages paid in mining do set the national wage level the mining sector will nurture the growth of a small highly paid elite which, in the initial stage, will be dominated by expatriates although, as localisation proceeds, will come to be dominated by Botswana nationals. As pointed out in Chapter 7 there are several arguments which might justify the creation of a national elite and these must

be examined within the context of the Botswana economy.

Firstly, Botswana, like most LDCs, is severely constrained by a shortage of domestic savings and it might be argued that the existence of a national elite will assist in overcoming this constraint. This argument may be supported within limits - it is likely that the highly paid nationals will devote a substantial portion of their earnings to improvement and development of their rural interests and, in this sense, the creation of a national elite may raise the level of investment. But this type of investment will not be very significant in a national context - the savings of one man applied to his individual rural holding are not likely to stimulate growth very significantly and serves to entrench the privileged position of the high wage earners. Although I do not know of any attempt to measure this phenomenon, one might expect a marked overlap between the privileged members of the rural and urban sectors. If the "reinvestment" argument is to be supported financial intermediaries must be developed in order to attract the savings of the high wage earners and make them available to borrowers who will invest in the development of a small scale, employment creating industrial sector. These conditions do not exist in Botswana.

Financial intermediation is dominated by the commercial banking sector which is controlled by the Standard Bank and Barclays Bank International. Botswana's membership of the Rand currency area complicates attempts to restrict the outflow of savings and the Commercial Banking sector appears to be engaging in progressive credit destruction rather than credit creation.

TABLE 14.1 Deposits and Advances of the Commercial Banks, 1965 - 1972 (R million)

	Deposits	Advances	%
31st March 1965	5 581	5 132	92,0
31st " 1966	8 166	6 488	79,5
31st " 1967	9 640	5 454	56,6
31st " 1968	12 591	7 048	56,0
31st " 1969	13 038	6 598	50,6
31st " 1970	20 136	10 137	50,3
31st " 1971	15 951	13 092	82,1
31st " 1972	22 366	13 153	58,8
1st January 1973	34 834	15 889	45,6
% growth per annum	26,7	15,7	

Source: National Development Plan 1973 - 78, Table 1.16.

From an examination of the above table one is forced to conclude that the Commercial Banks rechannel Botswana savings to South African borrowers. The government has attempted to reverse this flow by the formation of the National Development Bank which, by the 31st December 1972, had advanced loans amounting to approximately R 1,4 million. The National Development Bank does not accept deposits from individual savers. A Post Office savings scheme has been initiated and by February 1973 the amount deposited in the Post Office totalled R 573 194. Several Thrift and Loan Societies have been established and in 1971 a Building Society commenced operations in Botswana. Institutions of this nature are likely to attract the savings of the low income earners but are not likely to attract savings of the high wage elite.

The conclusion one draws from the above analysis is that the propensity of the highly paid wage earners to reinvest their earnings in Botswana is low. This does not necessarily stem from the individual wage earner designedly investing his earnings abroad, but is rather to be attributed to Botswana's position in the Rand currency area and to the dominance exercised by foreign owned banks over the Commercial Banking sector.

Secondly, it is argued that the high wages of the national elite will stimulate consumption. This argument has been discussed in some detail. I have argued that the consumption of a high wage elite will be directed towards imported consumer goods - the level of demand for domestically produced commodities, particularly from the manufacturing sector, will not be stimulated significantly and the foreign exchange content of the high wage elite will be considerable. This is true of Botswana - the output of the local manufacturing sector is small and is directed primarily to the tourist and export markets. Certain cheap consumer goods are manufactured in Gaborone and Francistown, for example cheap textiles and furniture, but these are not likely to attract the money of the high wage earners.

Thus, both of the arguments which might be used in support of the creation of a national elite do not apply in the Botswana situation. How will the creation of a class of high wage earners affect the lower paid workers in the cash economy?

b) <u>The Urban Sector Wage Gap</u>

We have seen that the high wages offered by the mining sector may have the effect of raising the general level

of skilled wages in the economy. How will this affect the wage gap?

It appears that the wage gap in the mining sector is not markedly more pronounced than that of the other sectors of the economy largely because of the relatively high unskilled wage available in the mining sector. Nevertheless the wage gap is sufficiently marked to justify the governments concern and would become more serious if the skilled wage offered in the mining sector was to force up the wages offered in other sectors.[1] Furthermore, it is not only the wages of the highly skilled highest paid workers that will rise in response to an increase in wages in the mines, but also those employees whose jobs require somewhat less education and training - the senior clerical workers, junior management, artisans, in general those earning in the R 150 to R 300 earnings bracket (13 per cent of the mines skilled workforce) - who might use the wages of the highest paid workers as their reference point.

TABLE 14.2 Average Cash Wages of non-Batswana Skilled Employees and Batswana Unskilled Employees - by sector - April/May 1972 (Rand)

Sector	non-Batswana skilled	Batswana unskilled	
Mining and Quarrying	460	47	9,8 : 1
Manufacturing	328	31	10,5 : 1
Construction	345	45	7,6 : 1
Commerce	270	30	9 : 1
Transport	320	51	6,2 : 1
Central Government	249	28	8,8 : 1
Average all sectors	329	39	8,4 : 1

Source: see Tables 12.4 and 12.5 above.

This wage gap should be narrowed from the top down, that is, by decreasing the level of wages of the highest paid workers. If no positive steps are taken to narrow the wage gap increasing unionisation and increased awareness of the disparity in earnings will force up the unskilled wage thus widening the gap between the rural and urban sectors. The mining sector will be able to absorb an increase in the unskilled wage rate, but the small scale manufacturing sector will be hard pressed to absorb an increase in its wage bill.

c) The Rural Sector

Scant attention has been paid to the effect which the development of the copper-nickel industry will have on the rural sector. It appears that an important distinction must be drawn between the long run and short run effects - the short run impact will be felt primarily in the subsistence sector, whilst in the long run the effect on commercial agriculture must be considered.[2]

In the long run the development of the mining sector could provide a significant stimulus to commercial crop production. This was certainly the experience of the Zambian economy where the Anglo and RST mine compounds not only provided the agricultural sector with a large market, but, in addition, the companies provided part of the financial and technological input required by the agricultural sector. The Selebi-Pikwe mines are not likely to provide as significant a stimulus to the Botswana agricultural sector. Firstly, there are no mine compounds and the mining company will not be a large purchaser of food. Secondly, the Selebi-Pikwe area is able to draw on the developed South African and, particularly, Rhodesian agricultural sectors.

Finally, the development of arable agriculture suffers from a severe water constraint in Botswana and presupposes considerable research activity and expenditure before it can be developed on a wide scale. The quality of the produce of the agricultural sector would have to be improved and this would require finance, and, more particularly the use of scarce administrative and organisational resources. The financial component, it might be argued, is provided by the revenue from mining, but the importance of the organisational component should not be underestimated because, it appears that, in certain instances, the rural sector is capable of producing a surplus but not of marketing it. This certainly appears to be the case with milk production in Mmadinari, the large village bordering on Selebi-Pikwe, where, by all accounts, the villagers are capable of producing a milk surplus but there is no organisation capable of treating and marketing the surplus. The Serowe Brigades[3] have established a market in Selebi-Pikwe which will market the output of the various Brigades thus providing a link with the rural sector.

What of the immediate short term impact on the subsistence sector. Most of the mines' workforce retain strong links with the rural areas and generally maintain a defined economic interest in their tribal villages. Part of the earnings of these workers will be remitted to their tribal villages - the remittances of the low income miners will generally be used to bolster consumption but, in certain instances, may constitute a small source of investment funds. The remittances of the high income earners will constitute a greater source of investment funds. This will enable the high wage earner to improve and supplement his rural assets, particularly his holding

of livestock. The high income earners in the urban sector will often come from economically privileged rural backgrounds - it was this source of privilege which enabled them to attend school and possibly university in the first place and the high income earned as a result thereof will allow them to consolidate the base of their privilege. Moreover, it is these people who stand to benefit most if the long term stimulus to commercial agriculture is realised.[4] In this sense then, the development of the mining sector, the high wages it pays and encourages, will influence the intra-rural income gap by consolidating the position of those already at the top of the rural income scale.

What of the short term effects on the poorer subsistence farmers? As noted above the wages paid to the miner will bolster the consumption level of the rural dependents and could possibly be used as a source of investment funds. It does remove an able bodied man (and possibly his family) from the rural area although his remittances compensate, in part, for his absence and, of course, he will try to ensure that he returns to the rural areas at harvest time. But, over and above those actually employed on the mine, the Selebi-Pikwe operations have attracted thousands of men to the town who are unable to find work of any nature and who remain totally dependent upon the rural sector.

Finally, the wage level of the unskilled miners at Selebi-Pikwe will have to be monitored carefully by the authorities. If the planners attempt to narrow the urban sector wage gap by allowing unskilled wages to rise from their present level the urban-rural income gap will widen and probably result in an increased flow of migrants

to Selebi-Pikwe and to the urban areas in general. Furthermore, if the government attempts to establish small scale rural industries it cannot afford wage competition at the unskilled level.

14.3 Conclusion

It is too early to assess accurately the distributional implications of the Selebi-Pikwe project. However, it appears that the skilled wage level prevailing in the mining sector will be the crucial determining variable. This will effectively establish the size of the inter-urban wage gap, not only in the mining sector, but in the modern sector as a whole. There would appear to be no justification for the creation of a high wage national elite - the reinvestment coefficient of the high income earners will be low and a large portion of their consumption expenditure will be directed at imported goods.

The government appears to favour a reduction of the intra-urban wage differential by ensuring that private enterprise and trade unions exercise restraint in calling for and granting wage increases. There is, however, likely to be pressure from the low paid workers - the unskilled but, more particularly, the less skilled, middle income employees - to take positive steps to narrow the wage gap. If the government attempts to narrow the urban wage differential by allowing the unskilled and lower skill level wages to drift upwards it will widen the urban-rural wage gap possibly accelerating the flow of rural-urban migration.

I have attempted to examine the impact that the development of the mining sector is likely to have on the agricultural sector. In the long run the Selebi-Pikwe project

and the large cash market it establishes may stimulate the development of commercial crop production but there are factors which will reduce the strength of this effect and inhibit the development of a large scale commercial crop sector. In the short run Selebi-Pikwe might constitute a market for the neighbouring rural areas although considerable financial and administrative resources will be required in order to improve and market the surplus output of the agricultural sector.

The short run impact on agriculture will be influenced by the distribution of income within the modern sector. The high wage of the skilled urban employees will enable them to improve and supplement their agricultural assets thus concentrating ruralwealth and urban income in the same hands. The urban-rural differential has encouraged a large migration from the rural areas to the urban areas - many of those migrating will be unable to find employment as is evidenced by the growth of a large squatter village at Selebi-Pikwe.

I have not examined the possibility of interest group alliances and their impact on government policy. In order to do this one would require a far more intimate understanding of Botswana's political economy than an outside observer could hope to achieve. But certain suggestions do emerge from the analysis. By maintaining a high skilled wage the mining company will be able to gain the support of a powerful sector of the economy - the educated, the wealthy - and this does not only refer to the employees of the mining company because, if it is generally acknowledged that competition with the mining sector is setting the national wage level, the mining sector will enjoy the support of the skilled workers in every sector, not

least of all the civil service whose salary levels are dependent, to a significant degree, on revenue from the mining sector. The government's dependence upon the mining sector as a source of revenue has been noted and will undoubtedly influence government policy - exemption from the withholding tax is probably just a blatant example of the direction in which the mining companies may attempt to pressurise the government.

NOTES TO CHAPTER 14

1 The average wage paid to non-Batswana does not reflect the average skilled wage but the average wage of the highest paid workers. This is, however, the wage at which these posts would be localised.

2 In 1971/72 the crop production of the traditional farming sector was valued at R 4,9 million, of which R 1,5 million was marketed. In the same year the freehold farmers sold crop and livestock to the value of R 10,1 million. Although there is no official breakdown of this figure, the value of freehold crop production is not likely to have exceeded R 2 million.

3 See Chapter 12, footnote 12.

4 This argument is disputable. It might be argued that commercial crop production in Botswana will only be successful if established on a very large scale under government control.

CHAPTER 15

Summary and Conclusions

15.1 Value Added and Retained

Before attempting to draw the final conclusions from the analysis I must stress once again that certain of the statistical information used is highly unreliable. Wherever possible I have used official reports and projections but, in several instances, this has been impossible and I have been compelled to rely on unofficial "guestimates". Nevertheless, despite the many questions that justifiably may be raised concerning the statistics used, it is possible to estimate the contribution which the Selebi-Pikwe mines will make to the national and domestic product. Table 15.1 uses as its framework the information contained in Table 11.2, which are projections made by the Ministry of Finance and Development Planning. Several of the statistics used by the Ministry are highly questionable - these doubts are registered and will modify the conclusions reached in Table 15.1.

The contents of the table below are derived as follows. The Ministry estimates (Table 11.2) that wages and salaries attributable to the Selebi-Pikwe operations in 1977/78 will total R 5,9 million. It is further estimated (Table 13.4) that in 1977/78 foreign workers in the mining sector will earn R 3,1 million. Approximately two-thirds of the mining sector's wage force are employed at Selebi-Pikwe thus the earnings attributable to Selebi-Pikwe foreigners will total approximately R 2 million,

the remainder, that is R 3,9 million, will accrue to Botswana citizens. The foreign exchange requirement[1] of the expatriate earnings and Batswana earnings is estimated at 60 per cent and 25 per cent respectively (chapter 13, section 13.4).

TABLE 15.1 Estimated Expenditures of Selebi-Pikwe Mining Companies and their Disposal - 1977/78 (R million)

	Expenditures (A)	Mean Foreign Exchange Requirement[2] % (B)	Expenditures on local goods and services (C)
a) Gross Output	50,0		
b) less Material Inputs			
i) imported	6,4	100	0
ii) locally produced	1,6	0	1,6
c) Gross Domestic Value Added	42,0		
of which:			
d) Wages and Salaries			
i) to expatriates	2,0	60	0,8
ii) to citizens	3,9	25	2,9
e) Government Receipts	7,5	10	6,8
f) Profits	22,4	85	3,4
g) Interest	6,2	100	0
h) Net National Value Added	24,8		

Note: 1) Errors may appear owing to rounding.

2) "Requirement" is used interchangeably with "content".

The Ministry estimates that government revenue from Selebi-Pikwe will total R 7,5 million in 1977/78 (Table 12.8).

This does not include customs duty charged on imports for Selebi-Pikwe. I have not been able to estimate the foreign exchange content of government revenue in Botswana - Killick, in his survey of the Sierra Leone mining sector, estimates that the foreign exchange content of the government revenue is 17 per cent and the estimate I have used for Botswana is probably somewhat conservative.

The profit estimate is drawn from Table 11.2. The estimate in Table 11.2 is a pre-tax total and the government revenue estimate of R 7,5 million has been deducted from the profit estimate. The above table does not include any estimate of depreciation. In the 1973 accounts the BRST auditors note that over a five year period commencing in November, 1973 BCL may, for tax purposes, amortise capital costs amounting to approximately R 110 million provided that the maximum relief sought in any particular year does not exceed more than 75 per cent of the tax liability in that year. If a depreciation estimate is included the total in Column (A) would not necessarily be affected - depreciation is merely the payment accruing to another factor, capital - the profit figure would be reduced accordingly and the total would remain the same.[2] It is reasonable to assume that the Ministry's revenue projections take into account the effect of the depreciation allowance and therefore the total for government receipts would not be altered by the inclusion of depreciation. Inclusion of a depreciation estimate would have some effect on the total of Column C because the foreign exchange content of depreciation will differ from that of profits.[3] The estimate of profit's foreign exchange content is derived from the proportions in which BCL's equity is held. This estimate is open to doubt because a certain portion of the profits will be retained and reinvested and not remitted to the shareholders. Bear in mind that reinvested profits will also have a high foreign exchange requirement because additional investment

presupposes the purchase of capital equipment from abroad. The interest estimate is taken from Table 11.2.

It is estimated in Table 11.2 that the Selebi-Pikwe mines will purchase material inputs to the value of R 8 million in 1977/78. The division as between locally produced and imported inputs is rationalised in Section 13.3.

The value added is calculated by deducting the value of intermediate goods required in production from gross output. The total arived at will be identical to the sum of factor payments, in fact, the profit figure will usually be a balancing residual item. It is estimated that the payment to factors (items (d) - (g)) will total R 42,0 million and, given an estimate of R 8 million for material inputs, the government obviously expects that the value of gross output will be R 50,0 million.

Item (c) is referred to as gross domestic value added because it includes factor payments to non-nationals. The national value added is arrived at by deducting the interest payments and 85 per cent of the profit figure. If the argument above concerning the depreciation allowance is correct, then by deducting profits from the gross domestic value added depreciation will also have been deducted thereby reducing the gross figure to a net total.[4]

Certain of the official estimates contained in Table 15.1 are likely to be incorrect. The nickel and, particularly, copper prices tend to fluctuate considerably over short periods and it is therefore difficult to estimate the value of gross output. Nevertheless, the estimate in Table 15.1 is probably somewhat conservative. Mining at

a rate of approximately 2 000 000 tons per annum, the value of gross output might be as high as R 70 million or R 80 million. This will result in an increase in profits and therefore government revenue. The interest estimate would appear to be highly conservative and will rise as a result of the increased borrowing by BRST from the major shareholders, Anglo and Amax.

Although there is considerable room for debate as regards the absolute magnitudes, it appears that a close examination of Table 15.1 suggests conclusions similar to those arrived at in Section II of the dissertation. When the contribution to Gross Domestic Product is used as the indicator, the copper-nickel industry's impact on the economy is considerable - if the 1977/78 GDP does in fact total R 189,7 million (Table 11.3) the portion attributable to the copper-nickel industry will amount to approximately 22 per cent. The contribution to Gross National Product is considerably smaller and the difference between the two is likely to be significantly larger than that suggested by the official estimates for the mining sector (Table 11.3). The large depreciation allowance means that the contribution to Net National Product will be smaller still. Furthermore, when one moves beyond the conventional national accounting definitions and takes into account the foreign exchange content of the wage and salary payments and government revenue the industry's impact is diminished further. Moreover, it appears that the bulk of the material inputs required by the industry will be purchased abroad.

15.2 The Underlying Factors - a brief summary

The conclusions outlined above are the predictable outcome of the interplay of a set of factors which Sections II and III have attempted to describe and analyse.

The two important features of the copper-nickel industry which have been emphasised by the analysis are:

1) The corporate structure of the copper-nickel industry. The industry is controlled by two large multinational corporations, Anglo American and Amax, both of whom control substantial mining interests in, inter alia, Southern and Central Africa. The techniques of production employed in the industry are therefore predictably capital intensive. Admittedly the range of technical choice is very limited, but, even when there has been a choice between utilising more or less capital intensive techniques of production, the company has opted for the more capital intensive technique.

2) Botswana's peripheral status in the Southern African region. The special nature of the Southern African core-periphery structure accentuates the force of the agglomeration economies analysed in Section II. Botswana's membership of the Southern African region exercises an important influence over every aspect of her economic life and considerably modifies the impact which the copper-nickel industry will have on Botswana.

The structure of the copper-nickel industry's labour force accords closely with that suggested in Section II.

The capital intensive techniques of production have ensured that the absolute number of workers employed is small with a relatively large proportion of high level manpower. The highly skilled component of the workforce is dominated by expatriates whose average wage is considerably higher than that available in any other sector of the economy. There is a strong likelihood that the wages in the mining sector will place an upward pressure on the national wage level. The Botswana government have opted for a low wage policy. They have attempted to overcome the interrelated problem of expatriate dependence and high wages by formulating a localisation programme and an incomes policy. The mining sector has enjoyed little success in localising its skilled workforce. The incomes policy stipulates that the wages prevailing in the government sector should determine the national wage structure. However, salaries available in the mining sector exceed those offered by government at almost every level and, in order to ensure the success of the incomes policy, it will be necessary to decrease the skilled wage level of the mining sector. It appears, however, that Government has responded to the high level of wages in mining by raising civil service wages. Unskilled wages in the mining sector are also somewhat higher than those prevailing in other sectors of the economy - the unskilled wage rate is likely to be determined by the wages prevailing on the South African mines.

It is difficult to predict the extent to which the development of the copper-nickel industry will affect the level of skills. At the one extreme the mining sector employs

highly skilled workers who will require a high level of formal education. Most of these positions will eventually be localised - the mining companies are providing bursaries and formal training in order to advance its localisation programme and thus will assist in raising the skill level of the workforce. This does not apply to a great many workers and high level manpower salaries offered by the mines will probably ensure that the recipients of these additional skills will remain within the mining sector. The lower level skilled employees will receive a certain amount of training, both formal and on-the-job, and they are likely to be more mobile between sectors. Many of the unskilled miners will have worked on the South African mines and their skill level is not likely to be raised significantly as a result of the added experience on the Botswana mines.

It should be noted that Table 15.1 does not incorporate an estimate of the employment opportunities indirectly created by the Selebi-Pikwe mine, although the estimate of locally produced inputs does account for part of the indirect employment creation. Most of the employment indirectly created by the Selebi-Pikwe mines will be in the services sector - domestic servants, shop assistants, those required to operate and maintain the various municipal services available in the town. The National Development Plan estimates a one-to-one ratio between direct and indirect employment creation. These is no justification for settling on this particular figure, and, in any event, the wage bill of those indirectly employed will be smaller than those directly employed because of the large component of domestic servants and the like in the former category.

Furthermore, it has been argued that the wage and employment policy of the copper-nickel industry will exercise a strong influence on the distribution of income, particularly if the high wages offered in the mining sector forces up the national wage. The mining sector's wage policy will give rise to a small national elite. It is difficult to justify the creation of a high wage elite - the reinvestment coefficient of the high wage earners is low, although their relatively high earnings will probably result in small scale investment in the agricultural sector; their consumption habits will be import oriented. If the government allows the urban wage gap to narrow by sanctioning an increase in low level skilled and unskilled wages the urban-rural earnings gap will widen. Furthermore, if the high wage elite devotes a portion of its earnings to accumulating agricultural assets, the high wage policy will have the effect of concentrating rural and urban wealth in the same hands.

The probable failure of the copper-nickel industry to generate local link industries is also attributable to the factors((1) and (2)) outlined above. The capital intensive nature of the core industry, that is, the copper-nickel industry, presupposes similarly capital intensive material inputs. Botswana is not capable of producing sophisticated capital equipment and, conceivably, might never be in a position to produce equipment of this nature. Moreover, as noted in Chapter 12, it is unlikely that the smaller less costly requirements of the mining sector will be produced in Botswana given the competition from South Africa. The Customs Union Agreement does permit limited protection but, particularly in the field of mining supplies, a Botswana manufacturer will have to compete with well established suppliers who have

benefited from the existence of a large domestic market. Furthermore, Anglo and Amax' substantial interests in Southern and Central Africa might inhibit the development of link industries. It is unlikely that a domestic refinery will be established in Botswana without specific government intervention.

The infrastructural facilities at Selebi-Pikwe should facilitate industrial development in the surrounding area, although the Botswana planners will have to overcome the water constraint which will persist despite the construction of the Shashe Dam. However, the additional transport and, particularly, power facilities undoubtedly increase the prospect of growth in the Selebi-Pikwe-Francistown area.

The copper-nickel industry does provide a market for the output of the agricultural sector although finance and planning will be needed to link these two sectors. The entry of the Brigades into this sphere of activity is to be welcomed. As regards the more distant future, it is difficult to forsee the copper-nickel industry stimulating large scale cash crop production - the market created at Selebi-Pikwe will probably be too small to justify the expenditure which large scale arable agriculture would require.

In general the local multiplier effects - both consumption and investment - of the copper-nickel industry are weak. A large portion of the wage bill will be expatriated or spent on imported consumer goods; profits will be remitted to foreign shareholders; backward and forward linkages will be realised in the developed countries - in the case of the copper-nickel industry the backward linkages will

be realised largely in South Africa, and the forward linkages in the United States.

The importance of the revenue that government derives from the industry is accentuated by the weak multiplier effects. Moreover, if the government actually enforces a low wage policy it is important that the financial benefits of a low wage industry do not accrue to the mining companies. The mining companies' reinvestment coefficient will be low - because of the exemption from the withholding tax on dividends and interest it will be to the companies' advantage to raise any additional finance that may be required either by means of a rights issue to the existing shareholders or by increased borrowings, particularly if the major shareholders or one of their subsidiaries act as the lenders. There is no incentive to reinvest profits which may be remitted free of tax to foreign shareholders.

In principle the government appears to have recognised this - the tax rate applied to BCL, BCL (Sales) and BRST is higher than that applied to other companies. In addition there is an escalator clause, and the government has attempted to inhibit the use of the transfer pricing mechanism. On the other hand, the companies have been granted significant concessions - they have been exempted from the withholding tax, and they have been granted extremely large depreciation allowances which will reduce their tax liability in the early years of the mine's life. The depreciation concessions invite increased capital intensity.

Nevertheless there is no attempt to deny the importance of mining's contribution to government revenue - Tables 12.10 and 12.11 clearly spell out governments reliance

on this source of revenue. If the growth of the mining sector and, therefore, the living standards of those dependent upon it, is not to outstrip that of the rest of the economy the government will have to inject the revenue from the mining sector into the agricultural sector and also to the nascent manufacturing sector. Chambers and Feldman, in their comprehensive report on rural development in Botswana, note that the Botswana Government,

> "... emphasises the possible social conflict arising from increasing income differentials. Mining development is welcomed as a means of solving the problem of maintaining government revenue but it is also seen as a threat to social harmony. The response is a policy to control the wage levels in the mining and urban sectors. Unfortunately this negative response will not be effective in producting more generally distributive levels of income especially in the rural areas, unless it is associated with an active policy of encouraging the linkages between the mining and urban centres with the rest of the local economy" (para 12.6).

15.3 Future Development

In the final analysis the conclusions do not differ materially from those arrived at in Section II. The scenario is similar - large MNCs dominate the export sector and employ capital intensive techniques of production. The implications for the Botswana economy closely approximate the pattern outlined in Section II - a small labour force with a relatively high average rate of pay, insignificant multiplier effects, and dependence upon the revenue derived from the activities of the MNC.

Where will Botswana go from here? I have carefully

avoided discussing policy alternatives - policy of the Botswana Government has been examined, and criticised or supported, but it has not been possible to outline detailed alternatives, and no attempt is made to embark on an exercise of this nature at this late stage. It is, however, important to attempt to predict future policy directions.

It is unlikely that the present government will consider expropriation or nationalisation of the copper-nickel industry and there is little to suggest that it would be a desirable step. The operation of the mine is firmly controlled by the mining companies and neither production or marketing would be possible if the companies were to withdraw their services, and a management contract would not necessarily be more favourable than the present arrangment. Government will almost certainly demand a greater share of future mining activity and may negotiate an increase in its share of BCL although this is unlikely.

The planners will undoubtedly attempt to encourage the development of link industries. The government might compel the mining companies to reinvest a stipulated share of their profits, or purchase a specified portion of their inputs in Botswana, thereby encouraging the mining companies to establish the link industries. However, provisions of this nature are likely to contravene either the Master Agreement or the Customs Union Agreement.

Government will concentrate upon increasing its revenue share. Theoretically its movement in this sphere is severely limited by the provisions of the Selebi-Pikwe Tax Agreement Ratification Act. Clause 9 (I) provides that BCL will not be subjected to "any unfavourable

discriminatory legislation in the field of direct or indirect taxation". Clause 9 (III) provides that,

> "... to the extent that any amendment or re-enactment of the current Act together with all other such amendments or re-enactments has the effect of increasing the liability of BCL to income tax by more than a nominal amount over that to which BCL would have been liable on the basis of this agreement and the current act such amendment or re-enactment shall not apply to BCL".

It is unlikely that a blanket clause of this nature would prevent the Botswana Government demanding a larger share of the mining companies' profits. The government's ability to extract a larger portion of the surplus depends upon its bargaining strength - the companies have comitted large sums of money to the project and will be loathe to jeopardise their interest in any way, although, as pointed out, even if their interests were to be expropriated their technical and managerial services would still be required. Botswana is dependent upon the expertise - both technical and managerial - of the mining companies and would not be able to operate the mine unaided. Furthermore, the Shashe Infrastructure is entirely dependent upon aid from multilateral and national aid bodies some of whom would undoubtedly suspend the loans in the event of what they deem to be a serious breach of the contract. Moreover the bargaining power of the companies is strengthened by the widespread interests that one of its major shareholders, the Anglo American Corporation, controls in Botswana - copper-nickel, diamonds, coal, brine, are all subject to control by Anglo.

Anglo's control over most of the important activity in the entire mining sector undoubtedly strengthens the bargaining power of BRST and BCL. Finally, the government will probably not attempt to amend the contract in any significant manner until the current technical problems are overcome.

NOTES TO CHAPTER 15

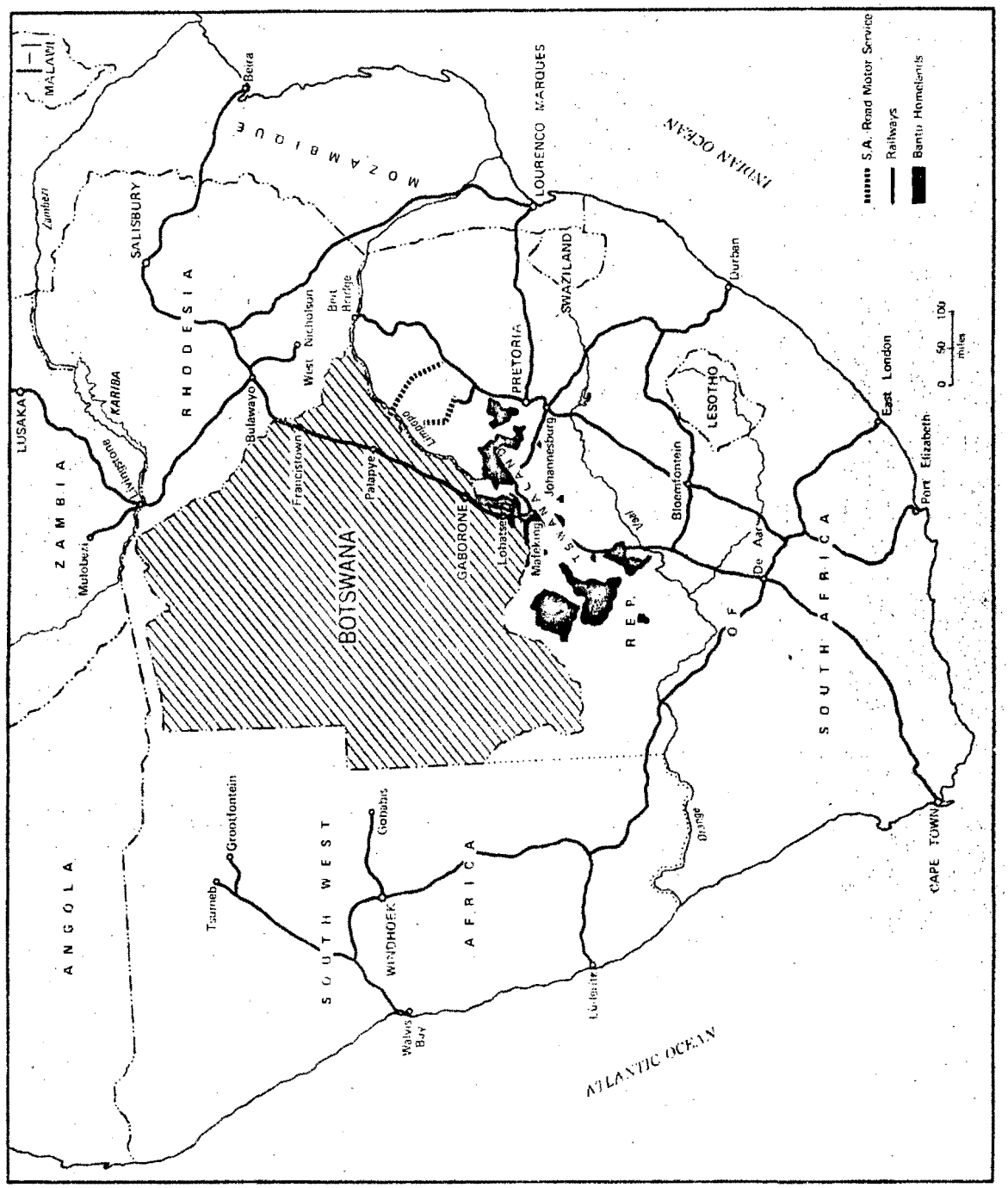
1 It is important to emphasise that "foreign exchange requirement" refers to any remittance of funds to any country outside Botswana. Botswana does not possess foreign exchange reserves as such but the money supply is determined by movements in the external accounts.

2 The profit rate appears to be exceptionally high - profits are 44,8 per cent of gross revenue. The profit rate is distorted by the omission of a depreciation estimate. The inclusion of the large depreciation allowance would probably have the effect of distorting the profit rate in the opposite direction in the initial years of the project's life.

3 Note that in so far as the depreciation allowance is used to replace capital equipment its foreign exchange content will be extremely high.

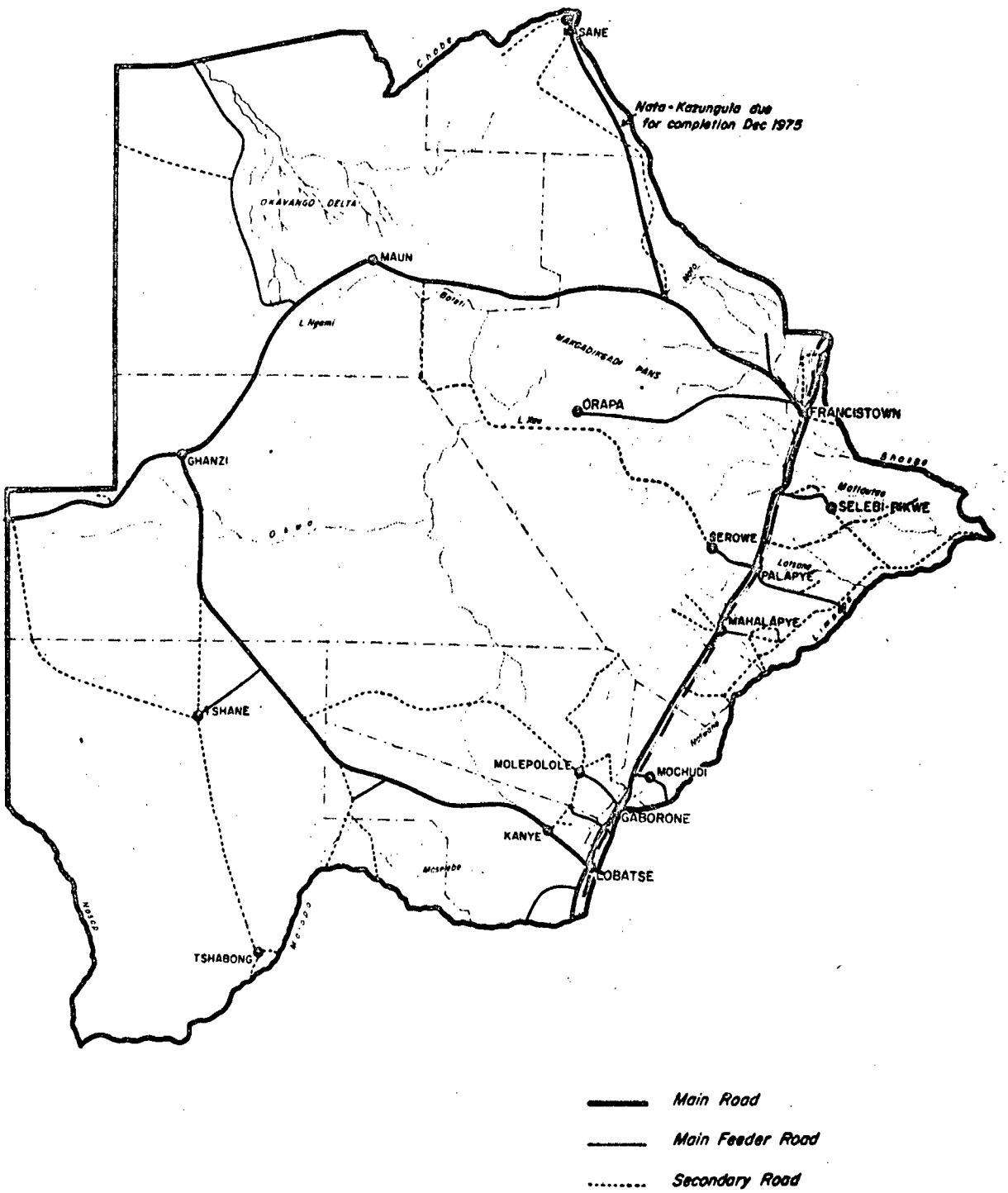
4 Although, effectively, only 85 per cent of the depreciation allowance will have been deducted.

Map A1 - Southern Africa



Source: Smit, P. - Botswana: Resources and Development, P10

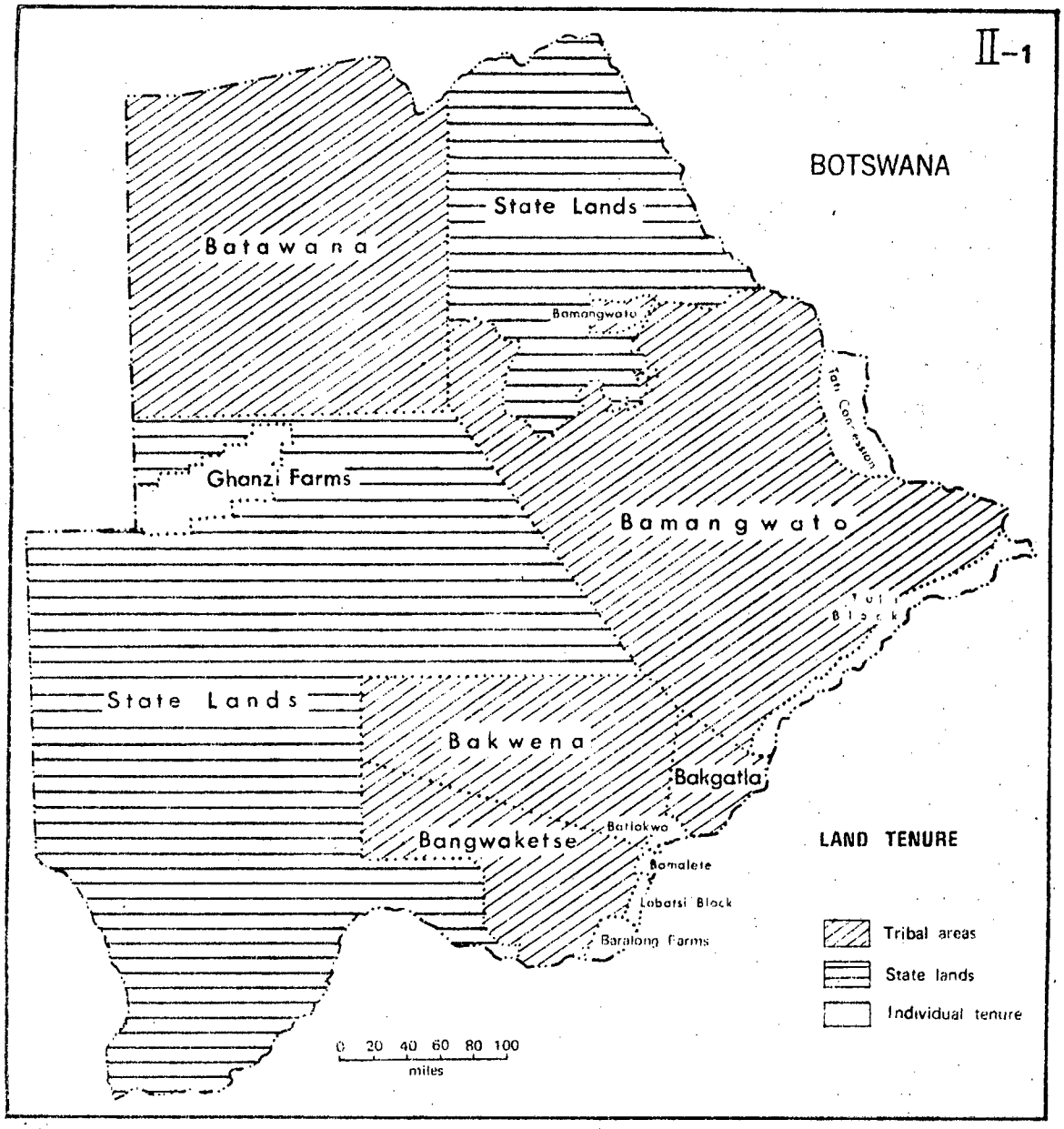
MAP A2 - BOTSWANA - MAJOR CENTRES AND ROADS



SOURCE: NATIONAL DEVELOPMENT PLAN, 1973-78, p. 258.

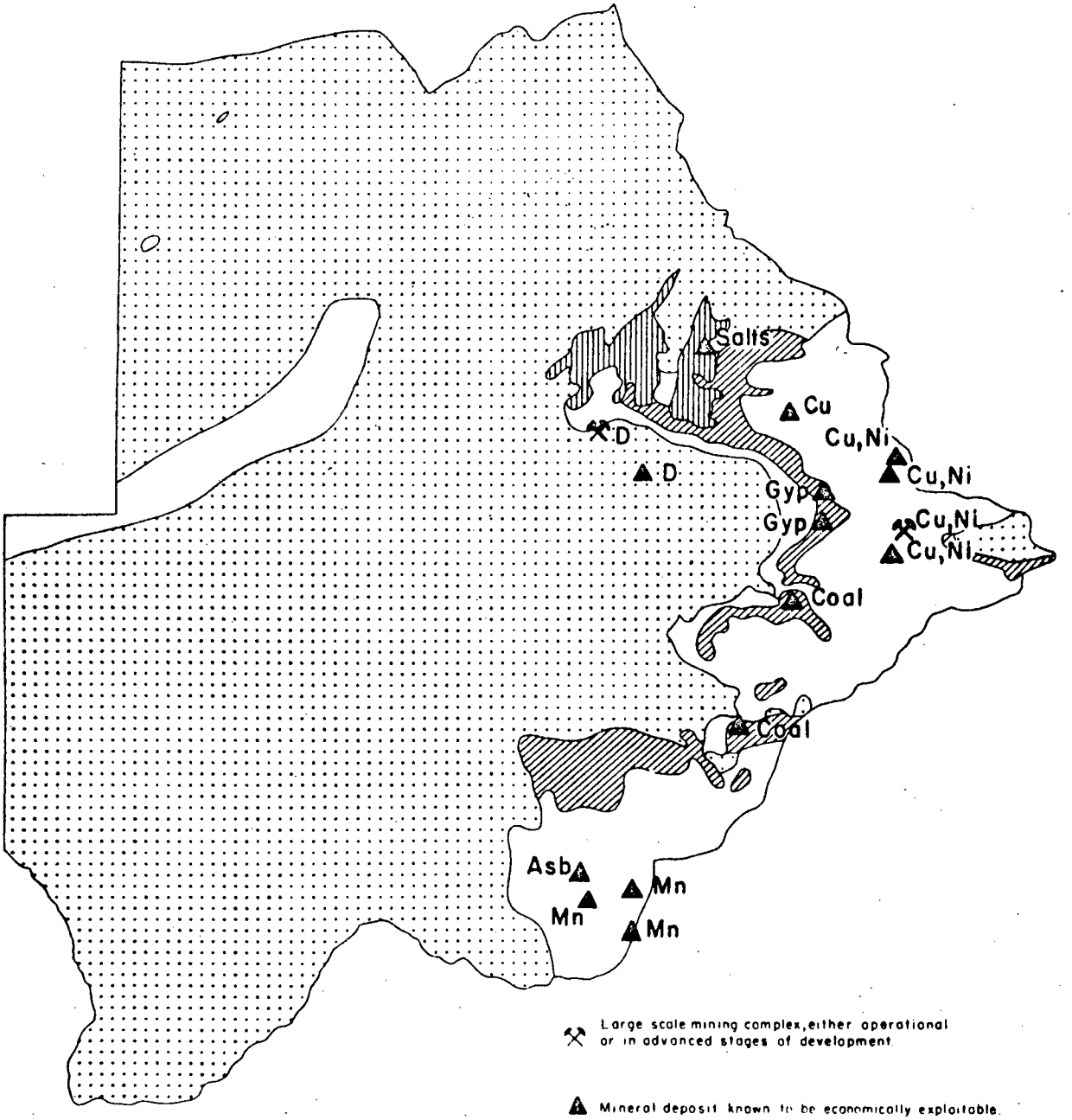
Map 13 1

MAP B - BOTSWANA - LAND TENURE



SOURCE: SMIT, P. - BOTSWANA: RESOURCES AND DEVELOPMENT P34

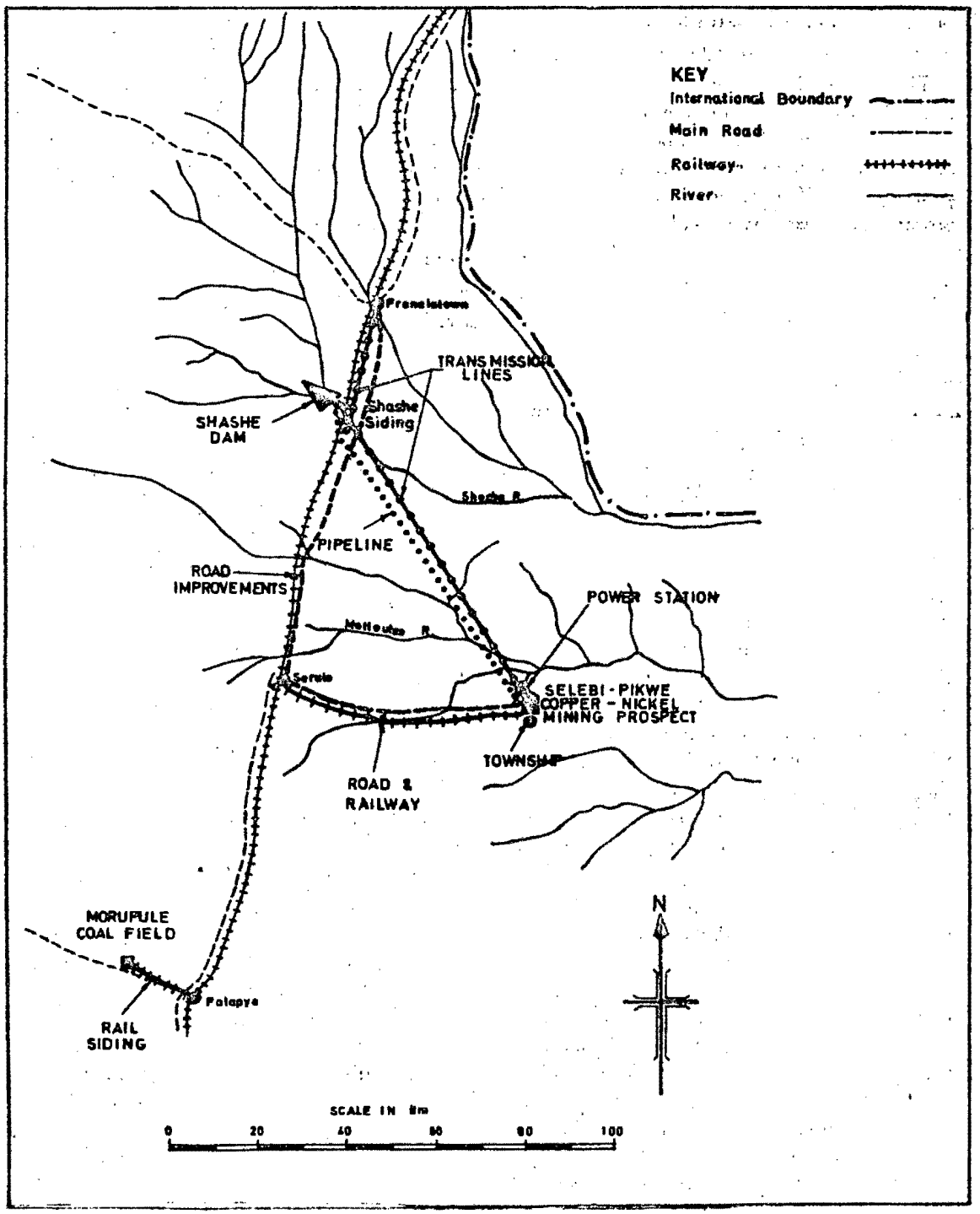
MAP C- MINERAL POTENTIAL OF BOTSWANA.



SOURCE: NATIONAL DEVELOPMENT PLAN, 1973-78, P210.

Map 10·1

MAP D - THE SHASHE INFRASTRUCTURE PROJECT



SOURCE: WHITE, R.J. - PLANNING OF WATER, ME POWER, TRANSPORTATION, AND TOWNSHIP FACILITIES FOR THE SHASHE PROJECT - BOTSWANA NOTES AND RECORDS, VOL. 4, 1972 P. 246.

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